UNIVERSITY of TASMANIA
AUSTRALIA

Paving the Practical Pathway:

The place of gifted education pedagogy

in undergraduate clinical skills education in Australia.

by
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Declaration of Originality

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Abstract

This thesis aims to explore factors which enhance clinical skills acquisition in undergraduate healthcare education in the disciplines of Medicine, Paramedicine and Pharmacy at the University of Tasmania, Australia. This is achieved through an exploration of relevant gifted education pedagogy.

The local and national healthcare context provides the platform for tertiary education across these disciplines. Within this, students from the University of Tasmania develop clinical skills which align theoretical, biologically-based knowledge and diagnostic skills with communication and interpersonal skills. This thesis presents a rationale for identifying such students as academically gifted learners, which intrinsically ties gifted education pedagogy to undergraduate healthcare study.

Through a phenomenological, mixed-methods approach this thesis investigates empathic responding, academic self-concept, and the Big Fish Little Pond Effect in the target cohort. Results of the study suggest that: demographic characteristics may predict levels of empathic responding; there are no clear links between academic self-concept and levels of empathic responding to well-developed clinical skills; and, demographic characteristics may also predict levels of clinical skills. There is evidence of the Big Fish Little Pond Effect amongst participants, particularly those studying Medicine. Further examination of the results through the lens of Kazimierz Dąbrowski's Theory of Positive Disintegration suggests that an understanding of the levels of development, particularly with reference to the Syntonic Continuum, may inform the design of appropriate pedagogical strategies to support empathic development in students and assist in mitigating against empathic decline or compassion fatigue.

These results suggest that gifted education pedagogy has a vital place within the learning and teaching of undergraduate healthcare education.

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Chapter 1: Overview

Introduction

In Australia the interactions between healthcare providers and their patients, colloquially known as the 'bedside manner', is often maligned and has a less-than positive public perception. Similarly the culture of many healthcare professions, particularly Medicine, also attracts significant public scrutiny, for example the highly controversial Four Corners television programme *At Their Mercy*, produced by the Australian Broadcasting Corporation (Four Corners, McDermott, & Michelmore, 2015; Munro, 2016; Srivastava, 2015) depicting an alleged bullying culture within hospital-based doctors. This exposé and the print media it stimulated also prompted a response from the Australian Medical Association (2015) regarding workplace bullying and harassment. Despite the publicity through both the mainstream press and social media following these public revelations, a great deal of emphasis is placed on the development of clinical skills, including communication and empathy, within undergraduate healthcare courses in Australia. The importance of this training is also supported by other professional bodies outside the tertiary education sector, for example an orientation programme provides for new General Practitioners by General Practice Training Tasmania aims to enhance both "safe and effective prescribing of medication and to develop their skills in interacting with patients" (Howard, 2017, p. 10). There is significant international research examining both the importance of positive patient interactions and the improved clinical outcomes for patients where enhanced clinical skills are evident (Pincus et al., 2013).

It may be that the current educational approaches to clinical skills education will further improve the way in which healthcare professionals respond to their patients and also positively impact the culture within healthcare professions, however there may also be merit in examining this situation through a new lens. The healthcare professions in Australia often attract academically gifted and high achieving students as evidenced by the academic

requirements for entry into the courses (see Tables 2, 4 and 6). Research within the gifted education discipline suggests the learning needs of academically gifted students are different to those of typical students. In the search for improved clinical skills outcomes for graduating healthcare professionals, and therefore improved outcomes for patients, it is essential to examine the potential implications of gifted education pedagogy. This exposes a significant gap in the literature on clinical skills acquisition and provides an important opportunity to explore these healthcare challenges from a new perspective, bringing together gifted education pedagogy, including academic self-concept, the Big Fish Little Pond Effect, and Dąbrowski's Theory of Positive Disintegration; the development of empathy, and its place within clinical skills acquisition in healthcare.

More explicitly, this thesis examines the place of gifted education pedagogy in clinical skills acquisition, specifically the development of empathy in undergraduate healthcare education within the disciplines of Medicine, Paramedicine and Pharmacy.

Initially the relevant literature is examined. This provides the contextual basis of healthcare education and takes a top-down approach. The strategic direction of healthcare within Australia is considered (Australian Government, 2011) and analysed against the policy provided by the World Health Organization (World Health Organization, 2007, 2015). The implications for healthcare delivery in Tasmania (Ferguson, 2014; Tasmanian Government, 2016) are then extrapolated and the connections to the delivery of undergraduate healthcare education are highlighted (The University of Tasmania, 2015, 2016b, 2016e). This contextual framework is further developed with reference to the mechanisms of national governance and accountability of tertiary institutions (Tertiary Education Quality and Standards Agency, 2012) followed by a discussion of the local Tasmanian context in which the undergraduate courses are taught. An overview of the Bachelor of Medicine Bachelor of Surgery (MBBS), Bachelor of Paramedic Practice (BParamedPrac) and the Bachelor of Pharmacy (BPharm) is provided, including the ways in which clinical skills are taught, assessed and valued. The

delivery of these courses is underscored by the University of Tasmania's 'students at the centre' policies (The University of Tasmania, 2012, 2016d, 2016e).

This thesis argues that many of the students enrolled in the Medicine, Paramedicine and Pharmacy courses at the University of Tasmania are academically gifted. The University of Tasmania, in its strategic documentation is clear that the student is to be placed at the centre of learning and teaching pedagogy (The University of Tasmania, 2016e). It is therefore appropriate to consider gifted education pedagogy and its relevance to learning and teaching in this context. Several models of giftedness are examined with a focus on Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2008, 2013) which is widely adopted across Australian educational jurisdictions (Harper, 2013; S. R. Smith & Laura, 2009). The relevance of giftedness to the education of undergraduate healthcare students is discussed further, with a particular focus on academic giftedness.

Academic giftedness in situations where there is an homogeneous learning environment, such as these three undergraduate courses prompts a consideration of academic self-concept. The literature pertaining to this phenomenon is analysed and placed in the context of the development of self, self-esteem, self-concept, and Social Comparison Theory (Festinger, 1954). From this discussion is drawn the Marsh/Shavelson model of self-concept (Marsh & Shavelson, 1985) and the emergence of the Big Fish Little Pond Effect (Marsh, 1987; Marsh, Trautwein, Oliver, Jürgen, & Olaf, 2007) which may in turn impact gifted and high ability learners as they transition from a heterogeneous to homogeneous learning environment.

The constructs of sympathy and empathy (Watt & Panksepp, 2016) are analysed and contrasted, and the place of empathy is considered within both healthcare education and more broadly across the delivery of healthcare. The importance of empathic responding within the suite of clinical skills required by health professionals is presented, as is a discussion of the pedagogical delivery of this area within the relevant health disciplines.

To further assess the challenges facing healthcare professionals and the importance of the clinical skills training, the impact of compassion fatigue (Lester, 2010), empathic decline (Picard et al., 2016) and perfectionism (Pyryt, 2007) are also considered, including the relevance of these phenomena within healthcare and the way in which they may impact healthcare students. The relationship of these constructs to gifted education and the recruitment practises for undergraduate healthcare courses are also outlined. A closer examination of the methods of measuring empathic responding is undertaken with a focus on four instruments that aim to assess levels of empathy. This analysis also includes consideration of the constructs of empathy that each purport to measure.

Finally, an analysis of personality development according to Dąbrowski's Theory of Positive Disintegration (Dąbrowski, 1964) is presented. This theory is recognised within the gifted education literature and has been the centre of much research within the discipline. Dąbrowski's Theory of Positive Disintegration is an emotion-centred, five level theory of personality development where all emotions, including those that are negative, are considered essential for the process of personality development. Within the presentation of the Theory of Positive Disintegration is a synthesis of Dąbrowski's writings on the development of empathy and its relationship to the construct of syntony. This work brings a new and vital perspective to the study of the development of empathy. The relationship between syntony and empathy is drawn together in a visual depiction of 'The Syntonic Continuum' that aims to make this complex work more accessible. Given its place within the gifted education literature, its focus on personality and the critical perspective provided on empathy, Dąbrowski's Theory of Positive Disintegration may further inform the analyses and deliberations contained within this thesis.

All elements of this literature provide the foundation for the development of the following study.

Aims of the study

By considering the delivery of undergraduate healthcare education with a focus on gifted education pedagogy, this study aims to examine the connections between the acquisition of clinical skills, particularly empathy, and other characteristics of academic giftedness for example academic self-concept and the Big Fish Little Pond Effect. These findings will then be considered through the lens of Dąbrowski's Theory of Positive Disintegration. This study also aims to contribute to the broader understanding of empathy and its development in academically gifted and high achieving undergraduate Medicine, Paramedicine and Pharmacy students.

Chapter 2: Review of the Literature

Healthcare in Australia: Strategic direction, local policy and education

Strategic Direction: A paradigm shift

Through the course of the last half-century there has been a significant shift in the focus and style of healthcare provision. Fifty years ago the healthcare delivery paradigm, particularly with reference to the practise of medicine, placed the medical professional at the centre of service provision with a paternalistic approach which persisted despite the early influence of key practitioners such as Mayo (Keating, 2013). The opposite of this delivery style is the informative approach whereby the healthcare professional provides the information through facts, options, and outcomes. In this approach the patient has responsibility for the decision-making. This has been described as the 'retail relationship' where the patient takes the role of a consumer; a range of options is provided and the patient, as consumer, chooses between them (Gawande, 2014).

The push to include and increase the role and place of the patient in judgements and decision-making regarding healthcare has caused much controversy. When this concept was introduced into healthcare practice, opinions were divided regarding the merit of de-mystifying healthcare as it would encourage a "more involved, informed and educated patient population" (Keating, 2013, p. 14).

A third type of healthcare delivery relationship is interpretive, where the role of the healthcare professional is to provide information and work with the patient to help them decide what course of action they wish to take (Gawande, 2014). There is strong evidence-that improved communication between the healthcare professional and the patient leads to better outcomes for both the patient and their families, and the healthcare professional (Lloyd & Bor, 2009; J. Silverman, Kurtz, & Draper, 2006). The contemporary notion of patient-centred care is based on this approach. This does not remove the professional responsibility

from the healthcare professional but "it becomes not only right but also necessary for a…[healthcare professional] to deliberate with people on their larger goals, to even challenge them to rethink…priorities and beliefs" (Gawande, 2014, p. 202) when considering all the options regarding care.

Patient- or Person- centred care

The healthcare literature is marked by a preference for the term 'patient-centred care'; however this can be contrasted with 'person-centred care' (Starfield, 2011). The former refers to a time-in-space approach to the patient where the healthcare professional addresses specific, individual and separate presentations of symptoms and how those are impacting upon the patient. Central to person-centred care however, is the interrelationship between the individual and the healthcare professional over the longer term and the healthcare provider's holistic approach to experiences through the life-course, the interrelatedness of illnesses, and lifestyle (Starfield, 2011). The linguistic nuance that accompanies 'person' rather than 'patient' is significant: 'patient' implies a person who is ill. Here the individual's self is tied to their condition. 'Person' on the other hand refers to an individual who may or may not be presenting with health concerns. There is no implication regarding the person and a specific illness or episode. The person-centred approach also considers healthcare "episodes as part of life-course experiences with health", "views diseases as interrelated phenomena", and is "concerned with the evolution of people's experienced health problems as well as with their diseases" (Starfield, 2011, p. 63). There is a global movement towards this holistic, interrelated, and relationship based style of healthcare provision.

Established in 1948 under the banner of the United Nations, the World Health Organization (WHO) has at its core the charter to "build a better, healthier future for people all over the world" (World Health Organization, 2017). This is achieved through the direction and coordination of international health. Further, as the international peak body for health

care, the WHO also has influence in areas including strategy and policy direction, the research agenda, and international partnerships. Australia is a member state of the Western Pacific Region of WHO and is therefore participating in, and responsible to the platforms adopted by the Western Pacific Regional Committee. The People-centred health care: A policy framework (World Health Organization, 2007, p. 1) states that the Western Pacific Region of WHO:

> is committed to working closely with its partners to promote people-centred health care and providing practical guidance to member states to ensure that health policies and interventions lead to more people-centred health care, better health outcomes, and improved health and well-being.

The Australian and Tasmanian response

As a member state Australia is a signatory to this vision and ostensibly committed to the delivery of "people-centred and integrated health services" as highlighted in the recent WHO interim report (World Health Organization, 2015). In order to be successful this strategic vision must translate into tangible service delivery methods. To ensure successful implementation this requires national and local strategies through both policy-driven initiatives and education. At a very practical level person-centred care is about being:

> compassionate, thinking about things from the person's point of view and being respectful are all important…but person-centred care is not just about activities. It is as much about the way professionals and patients think about care and their relationships as the actual services available…The underlying philosophy is…about doing things with people, rather than 'to' them" (Health Innovation Network, 2016).

This outline of person-centred care describes a healthcare relationship where communication and empathy are vital. This does not diminish the need for the healthcare professional to have a thorough knowledge and understanding of the clinical requirements of their respective discipline. In order to operate within this new paradigm of person-centred care there is an emphasis on bringing that traditional form of knowledge to an intersection

with the practicalities of patient/family interactions, cemented in communication and empathy. This union of clinical practice and communication is at the core of clinical skills and in this way places the relationship between healthcare professional and the receiver of care at the centre of the provision of care (Kuehn, 2012; Rider, 2011).

Strategic documentation within Australia suggests there is a tension between the definitions of 'patient-centred' that appears to be at the core of Australian policy, and the ethos of the 'person-centred' approach. The *Discussion Paper* proffered by the Australian Commission on Safety and Quality in Healthcare (Australian Government, 2011) states that:

> The patient-centred movement powerfully demonstrates that fully involving the individual patient as a person at all stages with unique needs, concerns and preferences will lead to more efficacious and satisfying outcomes…It involves not just the patient, but families, carers and other supporters. It is concerned about the patient's comfort and surroundings as well as their beliefs and values.

While this definition has its focus on the patient, it does not appear to support the person-centred approach, especially in consideration of the previously-outlined nuance between the 'cancer-patient' and the 'person who has cancer', and the holistic across-life healthcare approach advocated by Starfield (2011). This interpretation is also perpetuated by the Roundtable (Australian Government, 2016) of key stakeholders and disciplinary leaders regarding the implementation of Health Care Homes in Australia. The contemporary Australian policy platform therefore does not subscribe to the person-centred approach as championed by the WHO.

Tasmanian strategic and policy directions reflect those of the Australian government. At the culmination of the first hundred days in office in 2014, the Honourable Michael Ferguson MP, Minister for Health, addressed the Tasmanian Parliament saying:

> while we know there is no silver bullet to fix the health system, there is a growing and urgent call, especially from key health stakeholders, for change, through sensible

> reform measures, to put the patient back at the centre of all of our efforts (Ferguson, 2014).

This sentiment mirrors the national agenda and is clear in its intent. However the strategic plan presented by this same government is not as clear in focus. For instance, the *Healthy Tasmania: Five year strategic plan* (Tasmanian Government, 2016) provided by the Department of Health and Human Services is a platform for preventative health and associated community engagement. This strategic plan:

> is about people and the communities they belong to…[It is] very deliberately designed to give people the information and tools they need to make positive and healthy changes in their lives...[and] supports people from all walks of life to become more aware, interested, engaged and more in control of their own health and wellbeing (2016, p. 4).

The Tasmanian strategic direction in health does not identify either patient-centred or person-centred care, but focusses on the preventative care initiatives that lie with individuals and groups within the community and centre on increased engagement and education without providing direction for models of service delivery.

There had previously been a strategic framework provided at the state government level through *Leading the way: Tasmania's health professionals shaping future care* (Tasmanian Government, 2009). This document provided:

> a roadmap for transforming…[the] workforce in a way that will allow staff to tackle today's challenges and embrace ways of working that put patients and clients at the very centre of everything we do (2009, p. 1).

This vision was delivered under a previous government, whereas current leadership is provided through a Liberal government which is unlikely to entirely adopt the policy platform of its Labor predecessors. The *Submission to the Standing Committee on Community Development: Inquiry into palliative care* from Dying with Dignity Tasmania Inc. (2016) exemplifies the person-centred care ethos in its inclusion of the elements of this approach as

outlined by Starfield (2011) where knowledge of the whole person is the driver of appropriate care. Despite the demonstrated capacity within local healthcare stakeholders, there is a deficit in clear strategies and policy-driven initiatives at both national and state level that would guide the implementation and delivery of the person-centred care approach as advocated by the WHO. Healthcare professionals who are skilled in and committed to a person-centred approach may well be limited in their capacity if the organisational vision, strategies and organisational structures are not in place (Epstein & Street, 2011). This does not diminish the responsibility of all practitioners irrespective of discipline or experience level, to be fully cognisant of, and committed to, the principles of person-centred care. A person-centred approach does not demand extensive infrastructure investment: more, it requires attitudinal commitment at the strategic, policy and delivery levels (Greene, Dasso, Ho, & Genaidy, 2014).

There is potential to embed the person-centred approach to healthcare delivery through the education of undergraduate students across all discipline areas. Tertiary healthcare education is overseen by varying organisational bodies, depending on the specific discipline. Similarly the varying disciplines are taught at a variety of universities across Australia. For the purposes of this thesis the disciplines to be considered are Medicine, Paramedicine and Pharmacy.

Medicine, Paramedicine and Pharmacy education: The Australian Picture

Medicine, Paramedicine and Pharmacy courses are delivered by a variety of public and private tertiary institutions across Australia. These three disciplines are taught across undergraduate and post graduate levels. This section will identify the universities that deliver each course and their respective entrance requirements. This aides clarification of the academic requirements of undergraduate students and supports the assertion that they are academically gifted students.

Medicine. The study of Medicine provides both academic and clinical training that affords successful students with the "knowledge, skills and attitudes required to undertake supervised practice as interns in Australia or New Zealand" (The University of Tasmania, 2016a). Medicine is offered at undergraduate and graduate level and there are marked differences in the pre-requisites between each type of course (Australian Medical Association, 2016). To highlight this, the Australian universities that deliver each type of course are identified in Table 1 (Australian Education Network, 2016; Australian Medical Association, 2016; GEMSAS Processing, 2016).

Table 1

Australian Universities Delivering Medicine

University	State/Territory	Course type offered
Australian National University	Australian Capital Territory	Graduate
Bond University	Queensland	Undergraduate
Deakin University	Victoria	Graduate
Flinders University	South Australia	Graduate & Undergraduate
Griffith University	Queensland	Graduate
James Cook University	Queensland	Undergraduate
Monash University	Victoria	Undergraduate
University of Adelaide	South Australia	Undergraduate
University of Melbourne	Victoria	Graduate
University of New South Wales	New South Wales	Undergraduate
University of Newcastle	New South Wales	Undergraduate
University of Notre Dame (Freemantle and Sydney)	Western Australia	Graduate
University of Queensland	Queensland	Graduate
University of Sydney	New South Wales	Graduate & Undergraduate
University of Tasmania	Tasmania	Undergraduate
University of Western Australia	Western Australia	Graduate
University of Western Sydney	New South Wales	Undergraduate
University of Wollongong	New South Wales	Graduate

Graduate entry. Students applying into Medicine must be in their final year or have completed an undergraduate degree, having achieved a weighted Grade Point Average (GPA) of a level prescribed by each medical school. Universities offering a graduate course also require prospective students to complete the Graduate Medical School Admissions Test (GAMSAT), which aims to:

> assess the capacity to undertake high-level intellectual studies in the medical and health professional programs…[by evaluating] the nature and extent of abilities and skills gained through prior experience and learning, including the mastery and use of concepts in basic science as well as the acquisition of more general skills in problem solving, critical thinking and writing (Australian Council for Educational Research, 2016a).

The third element of admission testing for graduate places in Medicine is the semi-structured interview. The score achieved on the interview is combined with those from the GPA and GAMSAT to provide a ranking. Of the ten universities that offer a graduate course, all except Flinders University and the University of Sydney belong to a consortium which uses the Graduate Entry Medical School Admissions System (GEMSAS) to administer the medical school application process (GEMSAS Processing, 2016). The two universities that do not participate in this consortium offer both graduate and undergraduate entry points for the study of Medicine, but the requirements for graduate entry at both institutions mirror those facilitated through the GEMSAS system.

Undergraduate entry. Undergraduate entry into schools of Medicine generally requires domestic applicants to have completed year 12 and gained an Australian Tertiary Admissions Rank (ATAR). The ATAR is the system by which students are measured for standard undergraduate entry into university courses within Australia. An ATAR is an individual student's numeric percentile ranking based on their Tertiary Entrance Scores (Office of Tasmanian Assessment Standards & Certification, 2016). The ATAR calculation is based on the selection of subjects studied; the level, i.e. degree of difficulty of each subject; and the award achieved. In Tasmania the ATAR system is managed by the Office of Tasmanian Assessment, Standards and Certification (TASC). Equally, outside Tasmania the ATAR is managed by state based administrations, for example the Universities Admission

Centre (UAC) which is based in New South Wales. A student's ATAR or previous academic results are also considered for entrance into Paramedicine and Pharmacy.

Additionally, prospective students in Medicine are frequently required to sit the Undergraduate Medicine and Health Sciences Admissions Test (UMAT). This test is designed to measure a student's ability in critical thinking and problem solving, and understanding people and non-verbal reasoning (Australian Council for Educational Research, 2016b). As with graduate entry, the undergraduate process may also include an interview. A summary of the domestic, undergraduate admission requirements is listed in Table 2.

Table 2

Undergraduate Entrance Requirements at Australian Universities Delivering Medicine

University	Minimum ATAR	UMAT	Interview
Bond University	97	No	Yes
Flinders University	95	Yes	No
James Cook University	Yes, but unspecified	No	Yes
Monash University	93	Yes	Yes
University of Adelaide	90	Yes	Yes
University of New South Wales	96	Yes	Yes
University of Newcastle/ University of New England*	91.4-94.3	Yes	MSA**
University of Sydney	99.95	No	Yes
University of Tasmania	95	Yes	No
University of Western Sydney	93.5-95.5	Yes	Yes

*University of Newcastle and the University of New England deliver a Joint Medical Programme.
**Multiple Skills Assessment (MSA) utilising eight x eight-minute rotating-scenario assessment stations (Australian Education Network, 2016).

Paramedicine. As with Medicine, Paramedicine study is offered in both undergraduate and postgraduate formats across tertiary institutions in Australia. The Australian universities that deliver Paramedicine and the level at which the course is taught is identified in Table 3 and a summary of the domestic, undergraduate admission requirements is listed in Table 4.

Table 3

Australian Universities Delivering Paramedicine

University	State/Territory	Course type offered
Australian Catholic University	New South Wales	Graduate & Undergraduate
Central Queensland University	Queensland	Graduate & Undergraduate
Charles Sturt University	New South Wales	Undergraduate
Curtin University of Technology	Western Australia	Undergraduate
Edith Cowan University	Western Australia	Graduate & Undergraduate
Federation University	Victoria	Graduate
Flinders University	South Australia	Undergraduate
Griffith University	Queensland	Undergraduate
La Trobe University	Victoria	Undergraduate
Monash University	Victoria	Graduate & Undergraduate
Queensland University of Technology	Queensland	Undergraduate
University of Southern Queensland	Queensland	Undergraduate
University of the Sunshine Coast	Queensland	Undergraduate
University of Tasmania	Tasmania	Graduate & Undergraduate
Western Sydney University	New South Wales	Undergraduate
Victoria University	Victoria	Undergraduate

Table 4

Undergraduate Entrance Requirements at Australian Universities Delivering Paramedicine

University	Minimum ATAR	Other requirements	Alternative entry
Australian Catholic University	79-92	PC, WWC, MC, PCT, CPR, IMM	Yes
Central Queensland University	60.2	Not specified	Yes
Charles Sturt University	70	PC, IMM, 1st A	Yes
Curtin University of Technology	70	PC, WWC, IMM, MRSA, plus St John Ambulance Pre-employment Student Ambulance Officer.	Yes
Edith Cowan University	70	PC, WWC, IMM, MRSA, MH	Not specified
Flinders University	94.8	PC, WWC, MC, PCT, IMM	Yes
Griffith University	95	PC, WWC, 1st A, CPR, IMM, MC, WIL, AFP	Yes
La Trobe University	71.2	PC, WWC, CPR, IMM	Yes
Monash University	64.2-75	Not specified	Yes
Q'land University of Technology	89	PC, WWC, MC, PCT	Yes
University of Tasmania	75	Not specified	Yes
University of Sthn Queensland	67	PC, IMM, MC, plus clinical placement induction	Yes
University of the Sunshine Coast	72	PC, WWC, CPR, 1st A, IMM	Yes
Victoria University	Yes, but unspecified	PC, WWC, MC, PCT, IMM	Yes
Western Sydney University	92	Inherent requirements*	Yes

Note. PC = Police Check, WWC = Working with children check/Working with vulnerable people/Blue Card, MC = medical check, PCT = Physical capacity test, CPR = Cardiopulmonary resuscitation certificate, IMM = immunisations, 1st A = First Aide, MH = Manual Handling, MRSA = Methicillin-resistant Staphylococcus aureus (MRSA) clearance, WIL = Work Integrated Learning Health and Safety Module, AFP = Australia's First Peoples Cultural Awareness for Health.

* Western Sydney University (2015).

Pharmacy. As with Medicine and Paramedicine, studies in Pharmacy are offered in both undergraduate and postgraduate formats at tertiary institutions in Australia. Table 5 lists the universities in Australia that teach Pharmacy and Table 6 identifies the entrance requirements.

Table 5

Australian Universities Delivering Pharmacy

University	State/Territory	Course type offered
Charles Darwin University	Northern Territory	Undergraduate
Charles Sturt University	New South Wales	Undergraduate
Curtin University of Technology	Western Australia	Graduate & Undergraduate
Griffith University	Queensland	Graduate & Undergraduate
James Cook University	Queensland	Undergraduate
La Trobe University	Victoria	Undergraduate
Monash University	Victoria	Graduate & Undergraduate
Queensland University of Technology	Queensland	Undergraduate
RMIT University	Victoria	Undergraduate
University of Canberra	ACT	Graduate & Undergraduate
University of Newcastle	New South Wales	Graduate & Undergraduate
University of Queensland	Queensland	Graduate & Undergraduate
University of South Australia	South Australia	Graduate & Undergraduate
University of Sydney	New South Wales	Graduate & Undergraduate
University of Tasmania	Tasmania	Graduate & Undergraduate
University of Technology Sydney	New South Wales	Graduate
University of Western Australia	Western Australia	Graduate

Table 6

Undergraduate Entrance Requirements at Australian Universities Delivering Pharmacy

University	Minimum ATAR	Other requirements	Alternative pathway entry
Charles Darwin University	Yes, unspecified	Not specified	yes
Charles Sturt University	80	Not specified	Not specified
Curtin University of Technology	80	Not specified	Yes
Griffith University	74	Not specified	Yes
James Cook University	74	Not specified	Yes
La Trobe University	78.2	PC	Yes
Monash University	92.15	Not specified	Yes
Queensland University of Technology	87	WWC	Yes
RMIT University	Yes, unspecified	PC, WWC, IMM, plus supplementary information	Yes
University of Canberra	74	PC, IMM	Not specified
University of Newcastle	82.05	PC, IMM, 1st A, CC	Yes
University of Queensland	87	WWC, IMM, plus clinical placement induction	Yes
University of South Australia	80.85	PC, AHPRA	Yes
University of Sydney	90	PC, WWC, IMM, plus Inherent requirements*	Yes
University of Tasmania	80	PC, WWC, IMM, Safe to practice health assessment**	Yes

Note. PC = Police Check, WWC = Working with children check/Working with vulnerable people/Blue Card, MC = medical check, CPR = Cardiopulmonary resuscitation certificate, IMM = immunisations, 1st A = First Aide, WIL = Work Integrated Learning Health and Safety Module, CC = Code of conduct, AHPRA = Australian Health Practitioner Regulation Agency student registration.

* The University of Sydney (2015)

** The University of Tasmania (2016c)

The Shaping of Tertiary Healthcare Learning and Teaching

National governance and accountability. Responsibility for the overarching governance and quality assurance for courses of study delivered to both domestic and international students in the Australian tertiary sector sits with the Tertiary Education Quality and Standards Agency (TEQSA). TEQSA was established by the Tertiary Education Quality and Standards Agency Act 2011. The TEQSA:

> registers and evaluates the performance of higher education providers against the Higher Education Standards Framework - specifically, the Threshold Standards, which all providers must meet in order to enter and remain within Australia's higher education system (Tertiary Education Quality and Standards Agency, 2012).

In the tertiary education health sector, the Forum of Australian Health Professions Councils and the Australian Health Practitioner Regulation Agency are integral to quality assurance processes through the administration of the Quality Framework for the Accreditation Function (Australian Health Practitioner Regulation Agency & the Forum of Australian Health Professions Councils, 2013). Qualifications issued from accredited providers allow students to be registered in Australia as health professionals in their relevant discipline regardless of the State or Territory jurisdiction within which they trained.

The Tasmanian context. The University of Tasmania is the only tertiary educational institution in Tasmania. The Divisions of Medicine, Paramedicine, and Pharmacy sit under the larger School of Medicine within the Faculty of Health.

At an organisational level the University of Tasmania has recently embarked on course restructures aimed at ensuring that courses of study are engaging and relevant, and framed by an overarching goal of continuous improvement designed to facilitate academic and research excellence (The University of Tasmania, 2012). The strategic focus of the University is articulated through the Curriculum 2025 white paper which states that the future focus of curriculum design is one "that is based on partnerships – with our students, with employers

and with wider society and it is a model that will make a positive impact on our communities in line with the social mission of the University" (The University of Tasmania, 2016e, p. 2).

Similarly, University of Tasmania Learning and Teaching policy identifies the need to put students at the centre of learning (N. Brown, Kregor, & Williams, 2013). The future vision, to ensure this focus continues, is also articulated in the Curriculum 2025 white paper which states that the university will " modernise the structure and pedagogy of provision to meet the needs of students in 2025" (The University of Tasmania, 2016e, p. 8). This overview provides the strategic context within which the undergraduate degrees in Medicine, Paramedicine and Pharmacy coexist.

University of Tasmania Course Overview

Bachelor of Medicine-Bachelor of Surgery (MBBS). The MBBS at the University of Tasmania is a 5-year, full-time undergraduate degree that aims "to produce graduates who will provide a significant contribution and positive impact on communities in Tasmania, mainland Australia and internationally" (The University of Tasmania, 2014b). Upon graduation, graduates are eligible for provisional professional registration enabling employment as an intern for a period of one year (The University of Tasmania, 2016a).

The MBBS curriculum delivery aims to adopt a student centred approach and the course uses situated learning and case-based learning techniques. The curriculum is divided into four domains of study: "Science and Scholarship (the medical graduate as scientist and scholar), Clinical Practice (the medical graduate as practitioner), Health and Society (the medical graduate as a health advocate) and Professionalism and Leadership (the medical graduate as a professional and leader)" (The University of Tasmania, 2016a). The clinical skills that are a focus of this study are taught within Clinical Practice. Each domain aims to incorporate the University of Tasmania's Graduate quality statement (The University of Tasmania, 2014a) and the registration requirements of the Medical Board of Australia (2012).

The course is divided into years 1-3 which is primarily focussed on campus-based learning and teaching, with practical interactions introduced from first-year. Years 4-5 focus upon practical learning via a clinical rotation methodology including a longer clinical placement. Students are placed across the three geographically disparate clinical schools, one each in the cities of Hobart, Launceston and Burnie. A minimum Australian Tertiary Entrance Rank (ATAR) of 95 is required to be eligible to apply for this course.

Bachelor of Paramedic Practice (BParamedPrac). The Bachelor of Paramedic Practice is a full time degree programme, delivered through a 'fast-track' model where students study for three semesters per year rather than the usual two. This model allows students to complete the degree in two years. The degree aims to provide graduates with "the knowledge and skills to assess and manage the broad range of out-of-hospital clinical presentations within a safe, effective and ethical practice framework, preparing you for a role as a paramedic" (The University of Tasmania, 2017a). Graduates are eligible for membership of Paramedics Australasia, and able to gain employment as a graduate ambulance paramedic.

The course is delineated into two years of study. During the first year, students study units that introduce both practical and theoretical foundations of health care. Students also undertake specialist paramedic units which provide an overview of healthcare and bioscience. The second year of study focuses on the critical care environment, out-of-hospital care and emergency patient care. Practical placements are incrementally staged throughout the course. A minimum ATAR of 75 is required to be eligible to apply for this course.

Bachelor of Pharmacy (BPharm). The Bachelor of Pharmacy is a four-year, full time degree course. Upon successful completion students are qualified to be registered and work as a pharmacist in Australia. Bachelor of Pharmacy students "study various topics influencing human health such as…the role of a pharmacist, how medications and their dosages are

made, how medications work in the human body [and] using medications and other means to prevent and manage medical conditions" (The University of Tasmania, 2017b).

The curriculum is divided into three major sections, by year. Whilst practical experiential learning is incorporated into the first two years, they have a more theoretical focus, whereas third and fourth year are more practical. A minimum ATAR of 80 is required to be eligible to apply for this course.

Clinical skills. Clinical skills are common to all three courses. These, and in particular empathy, are the focus of this thesis. Clinical skills bring together the theoretical biologically-based elements and diagnostic skills of the health disciplines alongside communication and interpersonal skills. It is the union of these areas that provides the junction of care-giver and care-receiver. The quality of this relationship influences the effectiveness of the healthcare provision (Banja, 2006; Hirsh & Worley, 2013). Additionally, the Graduate Quality Statement of The University of Tasmania (2014a) states that graduates will be "equipped and inspired to shape and respond to the opportunities and challenges of the future as accomplished communicators, highly regarded professionals and culturally competent citizens in local, national, and global society." The emphasis on communication further highlights the importance of this suite of skills both from within the professional skills-set required by healthcare professionals (Lloyd & Bor, 2009; J. Silverman et al., 2006), and also as a graduate of The University of Tasmania.

Once graduated and working as healthcare professionals students will by necessity draw upon their interpersonal skills as they engage with the people for whom they provide care. Empathy is one element within the suite of interpersonal skills that healthcare professionals require. The value of empathic responding within the healthcare profession achieves significant support in the literature. Malouff (2017) suggests that studies:

> support its [empathy] value. Health professionals who show high levels of empathy tend to get better adherence to treatment from their patients and better patient outcomes. And beyond health care, empathy is associated with better personal relationships and more successful social behaviour.

As demonstrated through the literature presented in the following sections, the distinct discipline areas of Medicine, Paramedicine, and Pharmacy each place significant import on communication skills and value the impact of empathy on the clinical relationship between healthcare professional and the people for whom they care. Each of the undergraduate courses focussed upon in this thesis embeds the clinical skills training within a particular element of the degree.

The place of emotion, empathy and communication within the practice of Medicine has evolved considerably in the last century – from a stoic, 'clinical' response to diagnosis and suffering as espoused by Sir William Osler (Halpern, 2014) to a 'detached concern' by the 1950s and '60s. This modus operandi was seen as an "idealized, white-coated concern, in which by refraining from emotional contamination, physicians would gain therapeutic power" (Halpern, 2014, pp. 301-302). Clinical empathy however is an essential component in the contemporary medical setting (Hojat, Axelrod, Spandorfer, & Mangione, 2013) and is associated with improved clinical outcomes, the increased satisfaction of the person receiving care and reduced malpractice litigation (Gleichgerrcht & Decety, 2013). The two principal goals of clinical empathy are: a) to provide effective care through an understanding of the individual's experiences, and b) to communicate in a way that fosters a positive therapeutic relationship (Halpern, 2014). Clinical empathy can be measured through first-, second- and third-person assessment utilising self-report, patient-report and observational methods respectively (Tamayo, Rizkalla, & Henderson, 2016).

In the MBBS clinical skills are specifically addressed within the domain 2 curriculum and are primarily measured through competency assessments via Observed, Structured

Clinical Examinations (OSCEs) (Assenheimer, Choi-Lundberg, & Cuellar, 2016). There is contention within the literature regarding the relationship between communication skills and empathic responding. Simmenroth-Nayda, Weiss, Fischer, and Himmel (2012) in their study a study based at a German medical school provide evidence of this tension, suggesting that improved communication skills do not necessarily have a causal relationship to increased empathic responding. Researchers used the Calgary-Cambridge Observation Guide (CCOG) (J. Silverman et al., 2006) to assess the history taking skills of participants at both pre- and post-intervention where the intervention consisted of a communication course. Questions in the history-taking sessions were divided into 'technical' and 'emotional' communication. Researchers found a significant improvement in the post-intervention scores on both styles of questions, although the improvement was greater for the technical questions. This study however was limited by the small sample size (N = 32) and did not utilise a control group.

In a similar finding the Data for the Improvement of Medical Education study (DIME study) based at the University of Cambridge in the UK (Quince, 2014; Quince et al., 2016) found that for medical students, regardless of gender, there was no significant difference in scores for empathy between students at the beginning of their university course and students' scores measured prior to completion. Study results also suggested that gender was "found to significantly predict empathy scores, with females scoring higher than males" (Quince et al., 2016, p. 1). Quince et al. (2016) do note that there are still questions regarding empathy levels post-graduation and once the students enter the professional workforce.

The DIME study utilised the Jefferson Scale of Empathy–student version (JSE-S) and Davis' Interpersonal Reactivity Index (IRI). The related Jefferson Scale of Physician Empathy (JSPE) and the IRI are discussed in detail in a later section. While the study adopted the full JSE-S only two of the four empathy subscales were included in the DIME study. The full version is a 28-item Likert-type self-report instrument. The reliability and validity data

are provided for the instrument as an entire entity (M. H. Davis, 1980, 1983), so it does raise a question regarding the advisability of excluding two of the empathy subscales with the 'fantasy' and 'personal distress' subscales being excluded. A confirmatory factor analysis undertaken by Chrysikou and Thompson (2015) suggests that the two-factor model of the IRI is a poor fit to the model, but does support Davis' original four-factor model. A similar finding was presented by Pulos, Elison, and Lennon (2004) who determined through an hierarchical factor analysis the factors loaded onto the four IRI subscales, but could also be presented as two orthogonal factors, general empathy and emotional control. Neither of these studies supports the practise of excluding two subscales of the IRI.

Gleichgerrcht and Decety (2013) conducted a large study (N = 7,584) examining the empathic responding of physicians, the majority of whom were practising (n = 7,497). Gleichgerrcht and Decety (2013) highlighted the disparity between definitions of empathy adopted within the social sciences and that in the healthcare professions. To this end, clinical empathy is defined as "the ability to understand another's experience, to communicate and confirm that understanding with the other person, and then to act in a helpful manner" (Gleichgerrcht & Decety, 2013, p. 1). The results of this study suggest that in order to facilitate appropriate empathic responding within the clinical context it is imperative that healthcare professionals have the capacity to undertake self-other awareness and to regulate their own emotions. The authors also found that while some negative arousal within the clinical situation is necessary to facilitate the understanding of another's experiences and feelings, that is to empathise, difficulty in managing this negative arousal may lead to detachment and compassion fatigue, burnout and secondary traumatic stress. These responses were also strongly related to both personal distress and alexithymia, which is:

> a multi-facet construct composed of four distinct characteristics: (1) difficulty identifying feelings and distinguishing between feelings and bodily sensations, (2)

> difficulty describing feelings, (3) paucity of fantasies, and (4) externally-oriented cognitive style (Loas, Braun, Linkowski, & Luminet, 2015, p. 754).

Given the connection that Gleichgerrcht and Decety (2013) draw between personal distress and the negative arousal that is experienced in clinical interactions, it again raises questions regarding the advisability of the two additional subscales of the IRI, one being the measure of 'personal distress' being excluded from the DIME study (Quince et al., 2016).

The findings of these studies provide three important insights into the nature of communication skills and the relationship to empathic responding suggesting that, a) there is not necessarily a causal relationship between improved communication skills and an increase in quality empathic responding, b) that there is not necessarily a decrease in empathic responding during the course of medical training, and c) the capacity for self-other awareness and personal emotional regulation are essential in the clinical setting.

While these findings illuminate the diverse views on the 'empathy in healthcare' issue, it is also suggested that it is indeed possible to work with people to increase their empathic responding (Malouff, 2017). The model proposed by Malouff however, is quite intensive involving a four-part process: instruction, modelling, practise, and feedback. Additionally there has been no consideration given to learner-centred pedagogy. Targeted interventions or alternative curriculum design based on a pedagogical understanding of the nature of gifted learners may provide improved outcomes. Similarly the findings of Gleichgerrcht and Decety (2013) suggest that the capacity for self-other awareness is a pivotal trait for the demonstration of appropriate clinical empathy responses. This aligns closely with much of the content of Dąbrowski's Theory of Positive Disintegration, which is discussed in detail in a later section.

In the Bachelor of Paramedic Practice clinical skills are taught within the units Principles of Paramedic Practice 1 and 2 (The University of Tasmania, 2017a). There has

been considerable change over the last 20 years in the nature of healthcare provision in Australia, including the paramedic sector. A fundamental challenge to the discipline was highlighted by Lucas et al. (2015, p. 242) who suggest that there has been a perceived value difference between clinical competence and "the 'soft skills' necessary to meet the changing demands of the profession". Evolving away from this previously-held attitude where interpersonal skills were somewhat demeaned, the role of paramedic has developed from purely that of an emergency first-responder to one with a holistic person-centred focus (Lucas et al., 2015). With this change comes a requirement to reflect upon the education provision for students to ensure that best practice is delivered in areas including, but not limited to, "respect, teamwork and communication, and holistic patient care systems and attitudes" (Williams, Onsman, & Brown, 2010, p. 582). This focus also responds to the previously mentioned strategic vision regarding person-centred care from the WHO.

Listening and communication skills are identified as a foundation for success as a paramedic (Boyle et al., 2011) and are associated with the establishment of an effective caring relationship and rapport (Ross, 2012; Ross & Williams, 2014). The importance of communication skills is also reinforced in the *Professional Expectations of a Paramedic* (Council of Ambulance Authorities Inc, 2013). Within a healthcare environment rapport can be defined as "the development of a therapeutic relationship based on mutual understanding (respect, empathy and trust)" (Ross & Williams, 2014, p. 128). This definition highlights the place of empathy and empathic responding within the paramedic discipline.

Along with empathic responding, attachment style is also associated with rapport building and the therapeutic relationship (Williams, Brown, McKenna, Beovich, & Etherington, 2017). While Williams et al. (2017) found a dearth of research on attachment styles within the Paramedicine discipline there was evidence of research supporting a relationship between the ability to regulate one's own emotions and the development of a

secure attachment style, which may in turn have a relationship with empathic responding. This aligns with the previously-mentioned research by Gleichgerrcht and Decety (2013) who found a positive relationship between the capacity for self-other awareness and the regulation of one's own emotional responses, with the nurturing of rapport-based therapeutic relationship, including empathic responding.

Highlighting the importance of strategies to improve the empathic responding of paramedic students, an earlier study found that students in this discipline report lower levels of empathic responding than students from other healthcare disciplines (Williams, Boyle, & Howard, 2015). Improvement in empathic responding and broader interpersonal skills has been found in paramedic students who participate in immersion-style practical placements (Lucas et al., 2015). A commitment to improving the therapeutic relationship through rapport-building and by enhancing empathic responding has become a higher priority both as a research focus and within the Australian paramedic practice curricula. As with the discipline of medicine an increased understanding of the students may provide the basis for the development of student-centred curricula that will promote increases in empathic responding and therefore an enhanced therapeutic relationship with the people for whom they provide care.

Clinical skills within Pharmacy practise are considered a fundamental component of relationship building (Fjortoft, Van Winkle, & Hojat, 2011) and are emphasised within the Bachelor of Pharmacy from the first semester of the course where there is a particular focus on communication and patient-centred care (The University of Tasmania, 2017c).

In order to practise Pharmacy graduates must meet the requirements for registrations as determined by the Pharmacy Board of Australia. One such requirement is the ability to communicate effectively (Kairuz & Bond, 2013; Pharmacy Board of Australia, 2017). As with the previously mentioned health disciplines there is substantial support for the

development of communication skills in Pharmacy (Beardsley, Kimberlin, & Tindall, 2008; Berger, 2009). The use of a criterion-referenced assessment rubric in a simulated clinical setting has been found to be an effective tool in supporting the development of improved communication techniques in Pharmacy students (Kairuz & Bond, 2013) as has the adoption of the objective structured clinical examination (OSCE) as an assessment mechanism (Urteaga, Attridge, Tovar, & Witte, 2015).

However, as with Medicine and Paramedicine, the concept of empathy within the Pharmacy discipline is also a separate, but as equally vital a factor as broader communication skills (Tamayo et al., 2016). In their study Tamayo et al. (2016) investigated differences in behavioural, emotional and cognitive empathy among Pharmacy students at Midwestern University in the United States of America. The Jefferson Scale of Empathy (Medical Student version) was used as the assessment instrument. Results of this study suggested that levels of emotional empathy were significantly higher than those for cognitive and behavioural empathy. There were also negative correlations with empathy for self-serving behaviour, medical authoritarianism and coercion (Tamayo et al., 2016, p. 1).

Levels of empathic responding were also measured by Van Winkle, Fjortoft, and Hojat (2012) utilising the Jefferson Scale of Empathy (JSE). This study provided an intervention in the form of a theatrical performance depicting some of the challenges relating to the elderly. Levels of empathic responding were measured prior to the performance (pre-test) and immediately after the performance (post-test 1) and again at a later time (post-test 2). While there was an immediate increase in empathic responding after the intervention, the results were not sustained and returned to the pre-test levels. This result raises questions regarding the educational pedagogy underpinning the intervention. The presentation was of 10 minutes duration and the participants engaged with it as audience members. This does not consider

the learning preferences, styles or personalities of the students. Nor does it consider any other idiosyncrasies that may be present if the students are gifted learners.

Emerging technologies are also impacting the core of the therapeutic relationship. Currently Health 2.0, where individuals can seek verification of diagnoses or second opinions via digital technology, is changing the relationship landscape for healthcare (Gagnon & Chartier, 2012). The development of new technology is rapid and already Health 3.0 uses web technologies, social media, portable electronic devices and peer-to-peer communication. In this way people for whom care is provided "will be empowered to adopt many new responsibilities regarding their health and health treatments. This is Health 3.0" (Gagnon & Chartier, 2012, p. 39). These technologies are emerging as the catalyst to further change, even before Health 2.0 is commonplace.

Each of these highlighted healthcare disciplines place a high value on clinical skills and the place of empathy within the therapeutic relationship. Emerging technologies are also impacting the nature of this relationship and therefore the way empathy may or may not be experienced by the person receiving healthcare. Given the strong correlation between empathy and positive healthcare outcomes (Terry & Cain, 2016) it behoves all healthcare professionals to examine ways to ensure this practise is not compromised. Again this is something to be considered when educating healthcare professionals of the future, who may be of a young, technologically literate and academically gifted cohort of students from a generation vastly different to those gone before.

It can be also argued that because of service-level reform and systemic funding cuts the value placed on clinical empathy is being undermined by efficiency demands (Dean, 2017). If this is accurate, then perhaps it only strengthens the urgency for increased focus on working with students through appropriately designed pedagogical practises to enhance their empathic responding. Since the student is at the centre of the University of Tasmania's strategic

approach to pedagogy, then it is imperative that all educators have a thorough understanding of the learning characteristics of their students. To do this it is necessary to be cognisant of the pedagogical requirements of the gifted learners who are undertaking these courses. The following section will provide an overview of some key elements of gifted education pedagogy and will address the relationship between this discipline and its place in healthcare education.

Gifted Education Principles and their application in Healthcare Education

The gifted education literature provides a number of views regarding the definition of giftedness and the possible conceptualisations or models of giftedness. This section will briefly address the salient issues arising from this situation and outline the importance of an agreed understanding of academic or intellectual giftedness, including how this might relate to healthcare education and the subsequent provision of that service in a patient-, or person-centred delivery model. The notion of academic self-concept will also be examined along with its relevance for learning and teaching provision, and the students who are studying within the specified healthcare disciplines. Accompanying the discussion of academic self-concept will be an analysis of the Big Fish, Little Pond Effect (Marsh, 1987; Marsh, Hau, & Craven, 2004). In particular this discussion will explore the relevance of the latter concept on academically gifted students who are studying within the tertiary education system, specifically within health-care disciplines.

Definitions and Models of Giftedness

The definitions of both giftedness and talent are complex and have significant implications for the identification of gifted and/or talented learners and the subsequent curriculum delivery. The boundaries provided by the definitions have consequences regarding the inclusion or exclusion of groups of learners as well as the support that may or

may not be provided for educational initiatives and programming (G. A. Davis, Rimm, & Siegle, 2011).

In Australia the *Melbourne Declaration on Educational Goals for Young Australians* (Ministerial Council on Education Employment Training and Youth Affairs, 2008, p. 7) provides two fundamental goals for the education of young Australians:

1. Australian schooling provides equity and excellence, and
2. All young Australians become:
    - Successful learners
    - Confident and creative individuals
    - Active and informed citizens.

These goals provide the strategic direction and foundation for the subsequent development of the Australian Curriculum which outlines national goals and benchmarks for the delivery of primary, secondary and senior secondary education across the country. Whilst the Australian Curriculum documentation does not specifically define the terms 'gifted' or 'talented', it does identify a breadth of characteristics of students who may be gifted or talented. This lack of clarity demonstrates the reality of the concern raised by G. A. Davis et al. (2011) regarding the impact of definitions of giftedness and/or talent. In Australia the most widely accepted definition/depiction of giftedness and talent (Australian Curriculum Assessment and Reporting Authority, 2016; Harper, 2013) is the Differentiated Model of Giftedness and Talent (DMGT) (Gagné, 2008, 2015), however the Australian Curriculum (2016) also points to Tannenbaum's Sea Star Model (Tannenbaum, 1983) and Renzulli's Three-Ring Model (Renzulli & Reis, 1993, 2008). It is therefore in order to examine these three models of giftedness.

Gagné's Differentiated Model of Giftedness and Talent (DMGT). The impetus for Gagné's original development of the DMGT was inspired by the confusion within the gifted education literature that came from a convolution of definitions regarding giftedness and talent (Gagné, 1985, 1991, 1995, 2009). This is a long-held challenge within this discipline (Tannenbaum, 1962). Gagné's DMGT is a complex and detailed model of talent development. Fundamental to the DMGT is the delineation between gifts and talent, with the former being a natural ability and the latter being the development of those abilities to a degree of mastery. Here giftedness refers to:

> the possession and use of outstanding natural abilities, called aptitudes, in at least one ability domain, to a degree that places an individual at least among the top 10% of age peers…[and talent] designates the outstanding mastery of systematically developed abilities, called competencies (knowledge and skills), in at least one field of human activity to a degree that places an individual at least among the top 10% of age peers who are or have been active in that field (Gagné, 2008, p. 1).

Subsequent modifications to the DMGT, now in version 2.0 (Gagné, 2009, 2010) (see Figure 1), have developed these definitions. The present definition of giftedness and talent (Gagné, 2013, p. 5) adds to the original by qualifying the delineation of gifts as:

> untrained and spontaneously expressed…[and occurring] in at least one ability domain…[whereas talent] designates the outstanding mastery of systematically developed competencies (knowledge and skills) in at least one field of human activity to a degree that places an individual at least among the top 10% of 'learning peers' (those who have accumulated a similar amount of learning time from either current or past training).

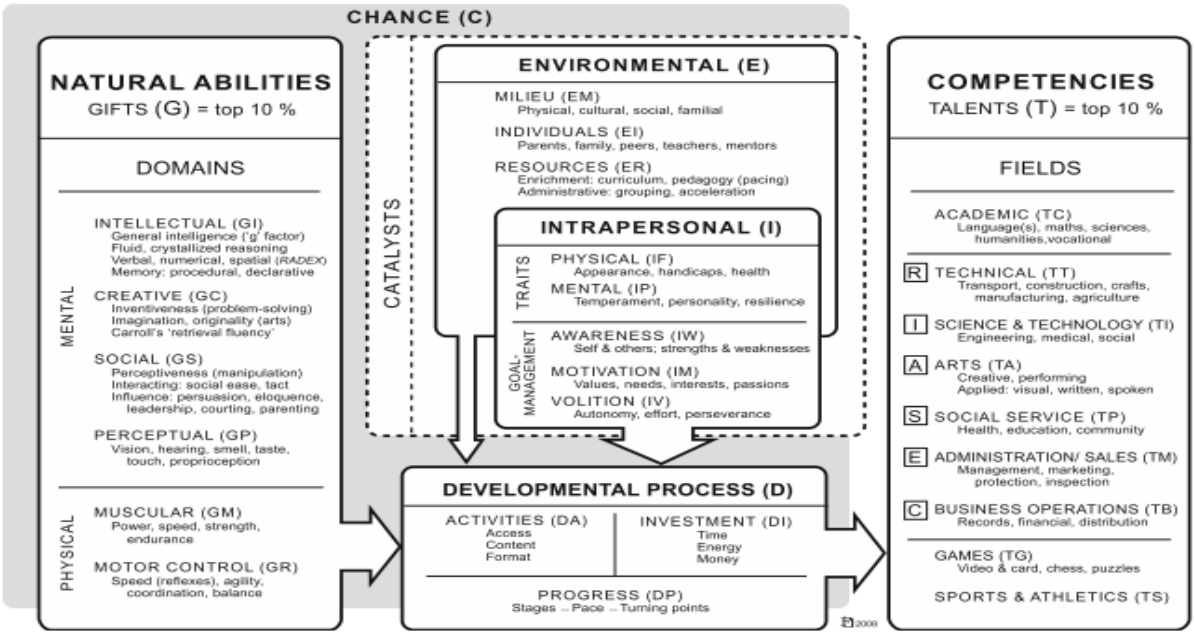

Figure 1. Graphical depiction of Gagné's Differentiated Model of Giftedness and Talent 2.0 (Gagné, 2015, p. 282).

Gagné's DMGT suggests that individuals have natural abilities across six domains, however the existence of these abilities does not imply that they will be developed to such a level as to be identified as 'talents'. 'Chance' impacts upon natural abilities, the developmental catalysts, and the consequent developmental processes as there are two fundamental agents over which we each hold no control, that shape each individual: "the accidents of birth and background" (Gagné, 2009, p. 70). While the inclusion and role of 'chance' have evolved through the iterations of the DMGT its presence demonstrates the influence of Tannenbaum (1983) on Gagné's thinking (Gagné, 2009).

Within the DMGT natural abilities that occur in the top 10% are considered to display a level of giftedness. A level of competence that occurs within the top 10% is considered to be a talent. Talent Development is defined as "the systematic pursuit by talentees, over a significant and continuous period of time, of a structured program of activities leading to a specific excellence goal" (Gagné, 2010, p. 84).

The DMGT depicts the structure of multiple influencing factors, or catalysts, on the notion of Talent Development. There are two sets of catalysts that impact upon Talent Development: environmental and interpersonal. The Interpersonal Catalyst has five sub-elements that are grouped into either physical or mental traits. The concept of empathy is embedded in the latter group. There are an "almost infinite list of descriptive qualities" (Gagné, 2010, p. 85) found in the suite of mental traits including both behavioural traits that have a genetic link, and personality traits that encompass a breadth of acquired behaviours that may be either positive or negative. It is the interplay of the Catalysts and Developmental Processes upon an individual's natural abilities, or gifts if they are in the top 10%, which will result in a level of competence being achieved, perhaps even a talent, for those achieving mastery in the top 10%.

In a significant development from previous iterations of the DMGT the 2.0 version modified the identified fields of talent. Previously examples were based on applicability for high school students, however the breadth of fields was expanded in 2.0 to include a greater diversity. Here talent was defined "in such a way that it ensures the presence of many individuals – the top 10% - in almost every human occupation" (Gagné, 2009, p. 66). So to summarise, Gagné's DMGT identifies all levels of human ability and specifically notes that the gifted sit within the top 10% of natural abilities. The DMGT then identifies a number of factors, or catalysts that may impact on the development of those abilities. These catalysts affect all people regardless of their level of ability. Processes of Talent Development are necessary to nurture a gift into a talent. When a degree of mastery is achieved at the top 10% within any domain, then that skill will be identified as a talent.

Tannenbaum's Sea Star Model. Tannenbaum first presented his Sea Star Model in his seminal text, *Gifted Children: Psychological and Educational Perspectives* (Tannenbaum, 1983). His model focuses on the relationship between ability and achievement and also

highlights the importance of personality and environment (Gross, 2005). Central to this model is the belief that only adults can exhibit developed giftedness. As a result talent in children is defined as denoting "their potential for becoming critically acclaimed performers or exemplary producers of ideas in spheres of activity that enhance the moral, physical, emotional, social, intellectual, or aesthetic life of humanity" (Tannenbaum, 1983, p. 86). Fundamental to Tannenbaum's theory on defining giftedness within only the adult community, was his concern that whilst precocity may be seen in many children through their engagement with accelerated learning when compared to chronological aged peers, this does not guarantee that such potentialities will manifest in mature giftedness as an adult. The emergence of talent into adult giftedness also requires the interaction of the individual with the environment in ways that would foster their own suite of abilities or talents.

There are five elements of influence presented within Tannenbaum's original model: general ability, special ability, environmental factors, chance factors and non-intellective factors (Tannenbaum, 1983). A subsequent iteration of the model slightly modified the focus of the factors to: superior general intellect, distinctive special aptitudes, environmental supports, chance and non-intellective requisites (Tannenbaum, 2003). These factors are visually represented as a five-pointed 'sea star', or star-fish type shape, with each point representing one of the factors (see Figure 2). Each of the factors has static and dynamic elements. The static elements identify the child's state at a single point in time and refer to the level of development of each factor. The dynamic elements refer to the elements that may stimulate development. These may include the processes involved in learning, along with any social and environmental influences that may cause change to occur (Gross, 2005). The overlapping section in the centre of the star, where all five factors converge, is the point at which giftedness is produced through the achievement of excellence.

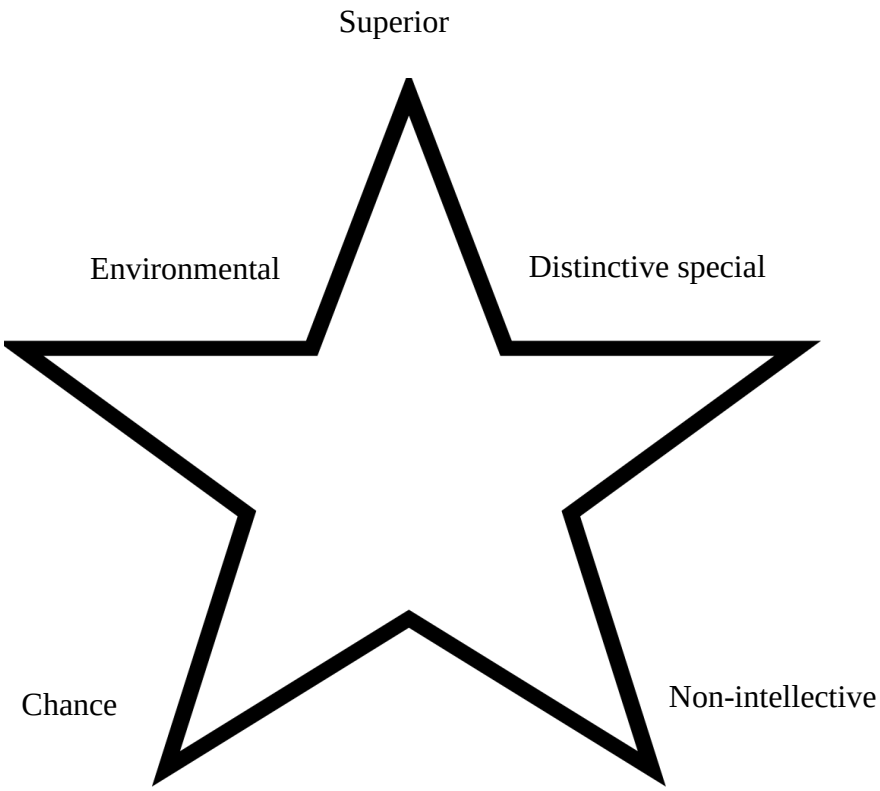

Figure 2. Graphical depiction of Tannenbaum's Sea-Star Model of Giftedness.

Tannenbaum's model is similar to Gagné's in that it includes domains of giftedness beyond those encompassed by intellectual giftedness or academic achievement. There are four categories into which Tannenbaum defines types of giftedness or talent: scarcity talents, surplus talents, quota talents, and anomalous talents (Tannenbaum, 1983). Scarcity talents are abilities that will always be sought-after, derived from a self-preserving rather than a self-serving approach to existence. These are talents that as the name suggests, are constantly in short supply in the world and, according to Tannenbaum include the contributions, of Alexander Fleming, Abraham Lincoln and Sigmund Freud. Surplus talents, are those which input "divine luxuries capable of beautifying the world without guaranteeing its continued existence" (Tannenbaum, 1983, p. 58). Tannenbaum contends that Pablo Picasso, Johann Sebastian Bach and Emily Dickinson are exemplars of surplus talent. Quota talents refer to a

high level of mastery of very specialized skills, however they relate to professions that are well defined and delineated, for example teachers, engineers, musicians, doctors and lawyers.

The demand for these roles is also subjectively assessed by society. Anomalous talents refer to an array of areas of excellence, including prodigious talents, which are not manifestly recognised or highly valued by the broader society. Examples of anomalous talents include the ability to speed read, perform gymnastics, or be a master of trivia. This category may also include other talents including high levels of proficiency in skills that are no longer valued by current society but may have be highly prized in bygone years, for example stone masonry. Anomalous talents may also include attributes that are socially undesirable, for example demagoguery (Tannenbaum, 1983, p. 60).

Whilst Tannenbaum provides for multiple domains in which talents may manifest, an individual must be classified within one or both of two spheres in order to be identified as gifted. The first sphere is that of a 'producer of ideas' where the identified ideas "enhance the moral, physical, emotional, social, intellectual, or aesthetic life of humanity" (Tannenbaum, 1989, p. 3). The second sphere within which giftedness may manifest is that of the performer. This includes both traditional performance in front of an audience, and those who perform in broadly community service roles. These spheres are consolidated through Tannenbaum's idea that true giftedness comes from the development of new ideas that are valued by society or new creation through artistic endeavour and not mastery based upon rote-learning or recreation. Tannenbaum acknowledges the subjective nature of societal valuation and questions both what criteria are being used to assess or measure domains of giftedness; and the changing nature of societal values over time and how this influences the classification of giftedness.

Renzulli's Three-Ring Conception of Giftedness. The Three-Ring Conception of Giftedness focuses on three clusters: ability level, which in terms of Renzulli's definition is considered to be above average but not necessarily superior ability; task commitment and creativity. It is the interaction of these three equally weighted clusters that facilitate "creative-production accomplishment" (Renzulli, 2005, p. 256), by which giftedness is identified (Renzulli, 1978). The Three-Ring Conception is usually depicted by a Venn diagram with three segments, one for each of the clusters (see Figure 3). To complement the Three-Ring Conception of Giftedness, the School-wide Enrichment Model (Renzulli & Reis, 2008) was developed as a means to operationalize his theoretical approach (Renzulli & Reis, 1993).

Similarly, the Three-Ring Conception of Giftedness allows for different varieties of giftedness. For example, high-achieving giftedness and creative-productive giftedness (Renzulli & Delacourt, 2013). High achieving giftedness equates to Gagné's intellectual giftedness and may be measured by IQ tests or traditional examinations, for example those administered within secondary and tertiary education systems. This can be contrasted with creative-productive giftedness where the focus is on "the development of original ideas and products" (Renzulli & Delacourt, 2013, p. 39). In this methodology the student adopts an inquiry-based approach within a discovery- and problem-based learning pedagogy, where the student drives the direction of inquiry according to their principal areas of interest. A notable criticism of the Renzulli model however, is that it does not sufficiently allow for potential, especially in children and young people who are underachieving (Gross, 2005).

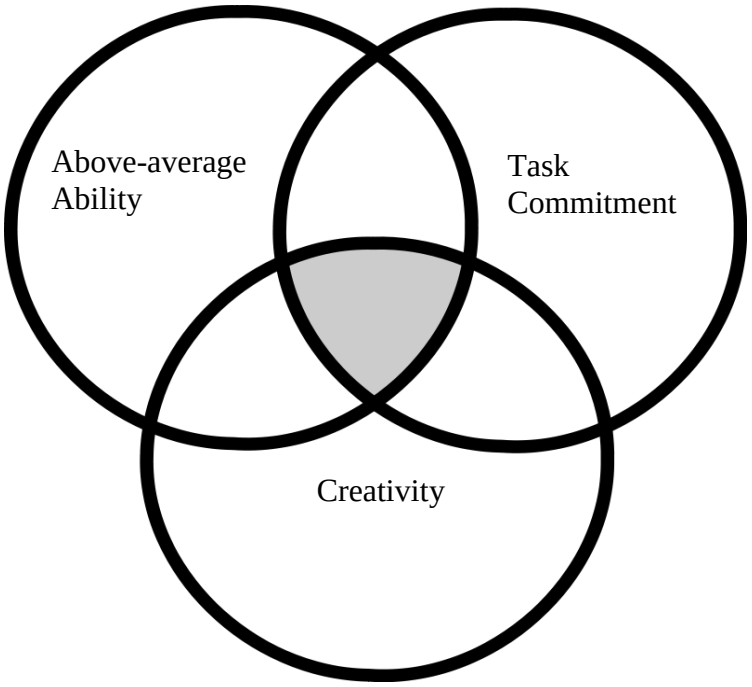

Figure 3. Graphical depiction of Renzulli's Three-Ring Conception of Giftedness.

Each of the models of giftedness highlighted within the Australian Curriculum, and briefly outlined above, identify giftedness through three broad key delineators. First, giftedness is defined as a level of performance that is above the average. Gagné suggests that 'above the average' should equate to the top 10% of aged peers in any given learning domain, however Renzulli is more fluid in his definition because he recognises that "one of the major errors that continues to be made in identification procedures is to over-emphasise superior cognitive abilities at the expense of the other two clusters of traits" (Renzulli & Reis, 1993, p. 23). Within the Three-Ring Conception of Giftedness, creative-production accomplishment is the yard-stick by which Renzulli measures giftedness. 'Task commitment' and 'creativity' are considered equal to that of 'above-average ability' in achieving the necessary level of accomplishment to fulfil the classification of giftedness. Consideration of intellectual or academic giftedness alone does not necessarily reflect the individual's capacity for the development of gifts into talents. The Sea-Star Model of Tannenbaum suggests that the level

of excellence required to identify giftedness can only be truly seen in adults who demonstrate tangible outcomes with a high degree of mastery in idea generation and/or performance within four separate categories of talent. Tannenbaum doesn't suggest a percentage or a proportion of the population who may meet the classification requirements, as his perspective is centred on the standards of produced outputs rather than comparison of people.

The second element common to the above three models of giftedness suggests that giftedness and the talent developed therein are shaped by a process that could be considered practise or task improvement or refinement. In this way the individual actively engages with an area, function or domain of ability. In Gagné's DMGT this would is the 'Developmental Process'. Tannenbaum acknowledges the place of curriculum design aimed at the needs of gifted and highly able learners to facilitate the development of gifts. Whilst the contentious nature of curriculum differentiation such as this is identified along with the potential that has always existed for such pedagogical processes to be labelled as elitist, the justification for developing enrichment activities for potentially gifted learners lies in educational paradigms such as Bloom's Taxonomy (Bloom, 1956; Tannenbaum, 1983). Tannenbaum references Renzulli's Enrichment Triad as an example of a curriculum model based upon Bloom's Taxonomy that is also widely adopted in schools (Renzulli & Reis, 2008). Work by Travers, Potito, Noonan, and Hunt (2016) suggests that Renzulli's Triad and the School-wide Enrichment model (Renzulli & Reis, 1993, 2012) are also capturing the attention of educators from the secondary education sector within Tasmania, Australia.

The other delineating factor identified within the three models of giftedness suggests that an individual's level of mastery of their area of giftedness becomes greater over time, being Gagné's Developmental Processes, Tannenbaum's Non-Intellective Factors, and Renzulli's Task Commitment.

In summary, the common elements between the models of giftedness highlighted suggest that a) to provide an appropriate learning environment for gifted and highly able people there needs to be a process for identifying the area of giftedness, b) that gift needs to be nurtured through enrichment activities that provide the opportunity for practise, skill development, deeper analysis or further thought as required, c) that these activities are based around the learning needs of the student; and d) that the process of nurturing gifts into talents are facilitated over time. Put another way, the above three models of giftedness contend that students identified as gifted may learn in a different way, and at a different speed, to students who are typical. This in turn, has consequences for learning and teaching. The Australian Curriculum mandates the learning framework from Foundation level to Year 12, however first year tertiary students are only a matter of months beyond this level. Many students who transition into the tertiary sector will be gifted and/or high achieving young adults whose learning needs neither end nor conform to those of typical students once year 12 is completed. Understanding the learner beyond year 12 continues to be of paramount importance in the effective design and delivery of appropriate and engaging curriculum, including those student who choose to study within the disciplines of Medicine, Paramedicine and Pharmacy.

Identification of students studying Medicine, Paramedicine and Pharmacy

Given the current Australia-wide preference for adopting Gagné's DMGT as the principal model of giftedness and talent, and its inclusion within the Australian Curriculum documentation, this model will be the reference point for identification and consideration of giftedness in undergraduate Medicine, Paramedicine and Pharmacy students.

Tables 2, 4 and 6 in the previous section identify the minimum ATAR requirements for entrance into the Medicine, Paramedicine and Pharmacy degrees at Australian universities, including the University of Tasmania. As the ATAR scores are percentile rankings, to receive

an ATAR of 90 or higher means that the student gained a score greater than or equal to the scores of 90% of all students in that cohort. It follows that any student whose ATAR is 90 or higher, would meet Gagné's parameters for giftedness which is identified as the top 10% of peers in any learning domain. Students gaining an ATAR of this level would be identified as gifted learners in the Intellectual Domain. Following Gagné's model, this does not suggest that those students will consequently be identified as 'talented'. There are a number of catalysts, as mentioned in the previous section examining Gagné's DMGT that impact upon the development of gifts into talents including a variety of intrapersonal factors (see Figure 1). Amongst these influential intrapersonal factors is the development of academic self-concept. To explore this, the following section will introduce concepts of 'self', 'self-concept', 'self-esteem' and their foundation within Social Comparison Theory. This discussion will then follow through to the Marsh/Shavelson Model of Academic Self-Concept and the related Big Fish Little Pond Effect.

The Self, Self-concept, Self-esteem and Social Comparison Theory

The Self. In addressing 'self-concept', it is important to first consider the nature of 'self'. The self is "the person, including mental processes, body and personality characteristics" (Westen, Burton, & Kowalski, 2006, p. 716). Historically, William James (1842-1910) in his influential text *The Principles of Psychology* (1890) differentiated between two separate parts of the self: the self as subject and the self as object. This is similar to the concept of 'subject-object in oneself' within Dąbrowski's Theory of Positive Disintegration that is addressed in detail later. A contrasting view of the self is that it is an emic object comprising "unity of the empirical existence of the individual and the individual's perception of that existence" (Zhao, 2014). For the purposes of this discussion, the view adopted is that held by James and subsequently supported by Dąbrowski which is

discussed in depth later. It is from within this definitional base of self that the individual representations of self-concept and self-esteem emerge (Peixoto & Almeida, 2010).

Self-concept. Self-concept, therefore, is the individual's concept or view of themselves. It is "a schema about the self that guides the way we thing about and remember information relevant to ourselves" (Westen et al., 2006, p. 716). This represents the 'self-as-object' perspective of James and his categorisation of 'me'. This construct contrasts with the 'self-as-subject' in that the individual has a consciousness of their own thoughts and "includes the person's experience of self as thinker, feeler and actor" (Westen et al., 2006, p. 716). This is James' notion of 'I'.

Self-evaluation is also related to the development of self-concept (J. D. Brown, 2007). Self-evaluation is undertaken through a series of personal judgements about personally valued aspects of the individual's self. It is through this process of self-analysis and self-perception that self-concept is established. There is not an implied level of accuracy regarding the self-perception of that individual when compared to the perspective of that person from another's external point of view (John & Robins, 1994). The outcomes of these personal judgements then influence the development of the self-concept. These factors appear closely related to the 'mental traits' that are catalysts to talent development in Gagné's DMGT 2.0 (Figure 1). These traits include temperament, personality and resilience.

Much early research into self-concept considered it to be a unidimensional construct. Any attempts to deviate from this approach resulted in confounding construct definitions (Barbara M. Byrne, 2002). Research since the 1980s has highlighted the value of considering a multidimensional approach where there is deeper analysis of individual self-concept constructs, including, but not exclusive to, social, physical and academic self-concept (Marsh, 1990a, 1990b, 2005). Self-concept constructs may also be influenced by an individual's culture (Shavelson, Hubner, & Stanton, 1976).

Self-esteem. Within the psychology literature there are differing schools of opinion regarding the basis of self-esteem, broadly: those who consider it has an affective basis, those who consider it has a cognitive basis, or those who consider it has both. Those who hold that the affective responses alone determine self-esteem suggest it develops from a series of responses that are not based in logic or reason. In contrast, those who believe that cognitive responses determine self-esteem suggest it develops as a result of a series of judgements regarding one's own abilities and values. The third approach suggests that it is a combination of both the affective and cognitive inputs that determine the self-esteem of an individual.

Once having established the foundation of self-esteem it may then be categorised as either 'global self-esteem' or 'specific self-esteem'. The former refers to "the individual's positive or negative attitude toward the self as a totality" (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995) and the latter toward a specific element of self-esteem.

In an attempt to ensure clarity of terminology, self-esteem may also be contrasted with self-worth, which is a more transient feeling that may fluctuate temporarily based on a given situation or circumstance (J. D. Brown, 2007). Also there is debate within the literature regarding the causal relationship between self-concept and associated self-evaluations, to the development of self-esteem. This discussion stems from the difference in cognitive/affective approaches to the construct. The cognitive model of self-esteem suggests that self-evaluations which lead to positive self-concepts in the varying constructs together produce a positive self-esteem. This can be contrasted with the affective model of self-esteem that contends that if an individual possesses a positive 'global' self-esteem, they will then develop higher self-concepts in specific domains (J. D. Brown, 2007, 2010). The inclination of an individual to make judgements regarding their own worth is also addressed in the Social Comparison Theory of Leon Festinger (1919-1989).

Social Comparison Theory. This theory was first addressed through a series of studies that examined informal communication relationships within groups (Festinger, 1950). Of the numerous hypotheses addressed in these studies, two are significant to this analysis. The first is the internal drive of an individual to seek validation for their held opinions. The second refers to the types of pressure an individual feels to conform to a group, including the notion of social reality. This concept is based in the subjective reality upon which an individual's opinions, beliefs and attitudes are based. The 'reality' is validated through the support of a group. Subjective reality may also be influenced by physical reality. The degree of this influence extends along a continuum from no degree of influence to a high degree of influence. Festinger (1950, p. 232) provides an example of hitting a surface with a hammer to determine if it will break. This engagement with a physical reality will either support or undermine an individual's opinion regarding the break-ability of the surface. The individual's opinion is based in a subjective reality, but is heavily shaped by the physical reality. Where there is little or no reliance on physical reality for the validation of subjective reality, it follows that the need for validity may be met through members of the social situation or group.

Festinger (1950) also examined both the forces that stimulate an individual to 'locomote' or change position, either within or between groups, and the influence of emotions on communication within groups. In his later work, Festinger (1954, p. 117) also applied his evolving theory of communication within groups to the "appraisal and evaluation of abilities as well as opinions". Festinger concluded that in respect to one's own abilities and opinions, individuals have a "drive for self-evaluation and the necessity for such an evaluation…[is] based on comparison with other persons" (Festinger, 1954, p. 138).

For the purpose of this study, the cognitive model of self-esteem is adopted and signals the further exploration of a particular construct of self-concept, specifically academic self-concept.

The Marsh/Shavelson Model of Academic Self-concept

The epistemological basis for the Marsh/Shavelson model of academic self-concept stems from the cognitive approach to self-esteem and the William James perspective on the self (James, 1890; Marsh & Shavelson, 1985). In the initial phase of development importance was placed on the:

> determination of theoretically consistent and distinguishable domains of self-concept…[as a] prerequisite to the study of how self-concept is related to other variables…[The] multifaceted structure of self-concept…cannot be adequately understood if its multidimensionality is ignored" (Marsh, 2005, p. 7).

The importance of this multifaceted approach to self-concept was highlighted in the initial work by Shavelson et al. on defining self-concept where the ideal definition would contain both a "within-construct portion…and…the between-construct portion" (Shavelson et al., 1976, p. 410). Self-concept was subsequently defined as:

> a person's self-perceptions that are formed through experience with and interpretations of one's environment. They are influenced especially by evaluations by significant others, reinforcements, and attributions for one's own behaviour" (Marsh, 2005, p. 8).

Following this, the Shavelson construct of self-concept was notionally divided into two principal elements: academic self-concept and non-academic self-concept. The non-academic element included social, emotional and physical self-concepts. A number of more detailed constructs could also manifest from each of these derivative self-concepts. An individual engages in self-evaluation on the basis of the behaviors demonstrated at the most specific level of each concept. Self-evaluation is therefore the genesis of that self-concept (Marsh, 2005; Marsh & Shavelson, 1985; Shavelson et al., 1976). The original Shavelson model of

self-concept was developed as a theory and therefore provided the springboard for further investigation and testing of the hierarchical nature and multidimensionality of self-concept.

From this standpoint Herbert Marsh developed the series of Self-Description Questionnaires that were based upon the Shavelson model of self-concept (Marsh, 1992b; Marsh & O'Neill, 1984; Marsh & Parker, 1984; Marsh, Relich, & Smith, 1981).

The original Self-Description Questionnaire (SDQI) was designed to "measure seven facets of self-concept hypothesized in Shavelson's hierarchical model" (Marsh et al., 1981). The dimensions of self-concept measured by the SDQI were divided into academic and non-academic categories. The academic category included: reading, mathematics, and a category that combined all school subjects. The non-academic category included: physical abilities, physical appearance, relations with peers, and relations with parents. Within the items there was a combination of positively- and negatively- worded questions and also a mixture of questions that had a cognitive versus affective basis. The SDQI was initially tested with a general population of pre-adolescent students from both public and private schools. Each factor was individually scored and three 'total' scores were calculated. The factor analyses supported the seven dimensions of self-concept and there were "consistent and predictable correlations with student sex, attributions of causes of academic success and failure, and academic achievement" (Marsh et al., 1981, p. 20). The lack of correlation between Maths and Reading provided the only exception to these findings as they were not correlated with each other despite being correlated to self-concept in 'All school subjects'. The other findings were strong enough for Marsh et al. to report "good support for the Shavelson assertions that self-concept is multifaceted and that these facets are hierarchically arranged" (Marsh et al., 1981, p. 21).

The Self-Description Questionnaire II (Marsh, 1992a) was designed for use with adolescent students and is a companion instrument to the SDQI. The SDQII measures the

same self-concept constructs as the SDQI: three academic, four non-academic, and one global. There was however, a revision within the non-academic constructs. The Peer Relations subscale was divided into two constructs: social relations with same-sex peers, and opposite-sex peers. Two non-academic subscales were also added: Emotional Stability, and Honesty/Trustworthiness (Marsh, 2017). The reliability and validity of this instrument for use with gifted students was brought into question by Plucker, Taylor, Callahan, and Tomchin (1997). Following confirmatory factor analysis, they contended that there was "limited evidence of construct validity using data from this [academically gifted adolescents (N = 459)] sample of gifted students" (Plucker et al., 1997, p. 704). The authors did however report satisfactory reliability and factorial validity for use with the gifted population while noting that there may be an experimental ceiling effect. In response to this Marsh, Plucker, and Stocking (2001, p. 976) undertook further investigation "exploring alternative approaches to missing data and data normalization" that had potentially confounded the results of the study undertaken by Plucker et al. (1997). These results addressed the concerns of the earlier work and provided strong support for the construct validity of the SDQII when used with gifted students.

As with the two previous instruments the SDQIII (Marsh, 1989) is also based upon the Shavelson model of self-concept, however this version is designed for use with late adolescent and is designed to measure 13 factors of self-concept. The first iteration of the SDQIII was modelled upon the construction of the SDQI with some slight modifications on the 'Peer Relations' subscale and the inclusion of 'Emotional Stability', 'Problem Solving/Creative Thinking', and 'General Self'. Following feedback where the instrument was administered to a sample of tertiary students, religion/spiritual values, and honesty/trustworthiness were included following a further testing regime. The reported factor analyses, reliability, validity and correlational data offered "offer strong support for the

construct validity of both self-concept and interpretations based upon the SDQ III" (Marsh & O'Neill, 1984). These findings were also supported by Barbara M Byrne (1988) who analysed the psychometric properties of the instrument.

Of particular note to this discussion is the Self-Description Questionnaire III (SDQIII) which measures academic self-concept and is used in the accompanying study. The detail and analysis of the SDQIII are documented in Chapters 3 and 4. During the development of the SDQIII Marsh identified the Big Fish, Little Pond Effect which is a phenomenon that impacts gifted students.

The Big Fish, Little Pond Effect

The Big Fish, Little Pond Effect (BFLPE) identified by Herbert Marsh (c.1946-) is a theory associated with the Marsh/Shavelson model of self-concept, with a specific focus on academic self-concept. The BFLPE has its basis in psychological theories such as Social Comparison Theory. At the core of the BFLPE is the suggestion that an individual's academic self-concept is derived from a self-evaluation of their academic achievements in combination with an evaluation of that of their academic peers (Marsh, 2005). That is, the BFLPE occurs when:

> equally able students have lower self-perceived academic skills and lower academic self-concepts when they compare themselves with more able students, and higher self-perceived academic skills and academic self-concepts when they compare themselves with less able students (Marsh, 1987, p. 281).

The BFLPE was introduced into the gifted education literature by Marsh and Parker (1984) and has significant implications for education within a selective learning environment. Marsh, Kong, and Hau (2000, p. 337) assert that social comparisons "lead students attending academically selective schools to experience lower academic self-concepts than equally able students attending less academically selective schools-a negative big-fish-little-pond effect (BFLPE)."

In contrast to the tenor of the BFLPE, Kulik and Kulik (1982, p. 425) in their meta-analysis of ability grouping found that gifted "students apparently benefited from the stimulation provided by other high-aptitude students and from the special curricula that grouping made possible." Herbert Marsh however, in the development of the Self-Description Questionnaire series, found that there is a strong correlation between academic ability and academic self-concept but that academic ability has a lower correlation to self-concept in non-academic domains when based on the Shavelson model of self-concept (Marsh, 1984). This position is the basis upon which, and through which, the Self-Description Questionnaire series was developed. It was also reflected in the article *Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well?* (Marsh & Parker, 1984) which provided the academic genesis for the BFLPE.

The frame-of-reference hypothesis upon which the BFLPE is based also references Social Comparison Theory. The hypothesis suggests "that group membership influences the values and standards of performance used by people in their self-evaluations" (Marsh, 1987, p. 281). The relevance of self-evaluation to both the self and self-concept was addressed earlier, however when considering the BFLPE highlights the importance of self-evaluation on specifically academic self-concept. In a practical sense this suggests that when students transition to a high-ability school from a heterogeneous one, there will be a negative effect on their academic self-concept. This is the BFLPE in action. Whilst considerable empirical work has been undertaken around the BFLPE there has been little success in identifying mediating factors. Seaton et al. (2008) investigated the potentially mediating effect of upward comparison on the BFLPE and found that there was in fact a positive effect on academic self-concept in allowing upward comparison. Similarly it was hypothesized that this was not isolated to high-ability schools, but would be relevant in homogeneous groupings. The

authors also concluded that integrating gifted students into heterogeneous schools may mediate for the BFLPE (Seaton et al., 2008). In a further study Seaton, Marsh, and Craven (2010) again found the BFLPE to be robust when mathematics self-concept was analysed against sixteen different student characteristics. Data for this study was drawn from the Programme for International Student Assessment (PISA) study conducted by the Organisation for Economic Co-operation and Development (OECD). As such participant numbers were considerable (N = 276,165). This study found that the BFLPE was:

> more pronounced for students who were more intelligent, who were highly anxious, who used memorization as a learning strategy, or who endorsed a cooperative orientation (Seaton et al., 2010, p. 417).

This investigation complemented a previous study by Marsh and Hau (2003) who found strong evidence supporting the BFLPE. Following the 2010 study, a similar investigation (Seaton, Marsh, Yeung, & Craven, 2011) was undertaken using the same data source but examining mathematics, verbal and science self-concepts for only the Australian students against nine potentially moderating constructs that were integrated into a framework of four dimensions that provided consistency with the Seaton et al. (2010) study. Analyses were also undertaken on a state-by-state basis. The study found no real evidence of BFLPE moderation, even in states where homogeneous schooling options were not available.

Additionally, the BFLPE is noted as one cause of anxiety in gifted students (Mendaglio, 2010) and that an understanding of the BFLPE and not just that of general self-concept, is of importance when working with gifted students (Mendaglio, 2012). These issues indicate the value of considering both the BFLPE and the idiosyncrasies of the student cohorts in relation to the learning and teaching pedagogy of tertiary healthcare courses.

Given the previously documented entrance requirements and selection processes, the School of Medicine at the University of Tasmania, is a high-ability selective learning environment. An increased understanding of the academic characteristics of the students who

are studying Medicine, Paramedicine and Pharmacy suggests that it is likely, with reference to the definitions previously presented, that many of these students are intellectually or academically gifted. Given this, there are a number of relevant areas of gifted education pedagogy that may, if adopted within the learning and teaching practises for this group, provide for increased student engagement and heightened clinical skills outcomes, which in turn may improve patient care. Broadly some relevant pedagogical considerations include learning styles (Peterson, 2009) and asynchronous development (Sartor, 2005; L. K. Silverman, 1997), the Big Fish, Little Pond Effect (BFLPE) (Marsh, 1987, 1990a; Marsh et al., 2004), empathic development (Eisenberg & Miller, 1987; Harper, 2013; Hay, Gross, Hoekman, & Rogers, 2007), and Dąbrowski's Theory of Positive Disintegration (Dąbrowski, 1966, 1996; Harper, Cornish, Smith, & Merrotsy, 2017; Mendaglio, 2002, 2008a).

The latter three areas are addressed in this thesis with specific reference to first-year Medicine, Paramedicine, and Pharmacy students at the University of Tasmania. It is imperative that healthcare students gain expertise in clinical skills which incorporate the interpersonal abilities that are fundamental to interactions with patients and their families. Within this suite of skills sits the concept of empathy. The following section will explore the nature of empathy and its place within healthcare provision.

Empathy

Understanding Empathy in the Context of Healthcare Education

Historically, studies of empathic responding within healthcare have focussed on empathy as a discrete construct, severing association between communication, judgement and clinical skills (Pedersen, 2009, 2010). Examination of a more inclusive suite of skills and attributes within healthcare may provide an improved understanding of empathy and associated pedagogies that will create the opportunity for enhanced teaching practises to more specifically address the learning needs of the students who undertake these courses of study. The longitudinal result of more focussed teaching and learning practices, for cohorts such as these, may include more empathic, patient-centred interactions and improved clinical outcomes.

The Graduate Statement of the The University of Tasmania (2014b) depicts that graduate as contributing positively at local, national and international levels. Similarly, the Technology Enhanced Learning and Teaching White Paper 2014-2018 (N. Brown et al., 2013, p. 3) states that the university will be "forging a direction in learning that puts students firmly at the centre." With this philosophy driving the learning and teaching at the University of Tasmania, the blueprint is provided with which to examine elements of undergraduate health care education, in this instance Medicine, Paramedicine and Pharmacy, specifically the development of empathy through the lens of gifted education pedagogy, focussing on Dąbrowski's Theory of Positive Disintegration (Pyryt, 2008).

What are Sympathy and Empathy?

Defining sympathy. The word 'sympathy' originates from the Greek word 'sympatheias', and was used in academic literature throughout the mid-1900s to identify a construct very similar to what we now understand by the term 'empathy' (Gerdes, 2011). There is little academic conflict regarding the construct of sympathy. Eisenberg and Miller

(1987, pp. 91-92) define sympathy as “an emotional response stemming from another's emotional state or condition that is not identical to the other's emotion, but consists of feelings of sorrow or concern for another's welfare.” The authors also note that the self is not the emotional focus of either sympathy or empathy. Supporting this premise, Eggum et al. (2011, p. 4) define sympathy as “feeling sorrow or concern for another”, but suggest that sympathy may develop from empathy. Sympathy may also contribute to the development of higher levels of moral reasoning (Decety & Michalska, 2010), however there is some debate regarding whether sympathy is a product of an empathic response, or whether sympathy is a lower order response, with empathy being more sophisticated.

Defining empathy. According to Gerdes (2011, p. 230) empathy “is prominent wherever humans are creating more just and compassionate social structures”. This point is not debated; however the fluidity of definitions of empathy continues to cause contention within the literature and across disciplines (Agosta, 2014; Decety, 2010; Eisenberg & Miller, 1987; Hoffman, 1981; Kristja´nsson, 2004; Spreng, McKinnon, Mar, & Levine, 2009). Decety (2010, p. 261) places the construct of empathy within emotional understanding. He says:

> An experience of emotion is a state of mind the content of which is at once affective (pleasant or unpleasant) and conceptual (a representation of the individual relation to the surrounding world)…Emotion is also, however, an interpersonal communication system that elicits responses from others. Thus emotions can be viewed as both intrapersonal and interpersonal states, and the construct of empathy entails both dimensions.

In an earlier work, Hoffman (1979, p. 962) simply refers to empathy as “the vicarious emotional response to another person” and subsequently (1981) he suggests that empathy is a universal human response and further develops the definition by noting that the response must be appropriate to the other’s situation rather than one’s own and notes that empathic

responding originates in an individual's genetic makeup. Hoffman also differentiates between an individual's response to someone in distress and the development of empathic distress; the latter being associated with egoistic motivation and low levels of altruism.

Affective empathy and cognitive empathy are two elements within empathic responding. Affective empathy is "the generation of an appropriate emotional reaction in response to other's [perceived] emotions…[and cognitive empathy as]…the ability to discern emotional states of others without undergoing emotional contagion" (Wai & Tiliopoulos, 2012, p. 794). The experience of empathy is a shared emotional experience, through one or both styles of empathic responding (Wai & Tiliopoulos, 2012) and in and of itself, is not a painful experience as it is not a self-focussed response (Gerdes, 2011). Whilst emotion more broadly is a method of interpersonal communication (Decety & Fotopoulou, 2015), empathy is a shared emotional state wherein the individual experiencing the empathic response does so whilst relating the shared state back to their own self (Decety & Svetlova, 2012). This, and the capacity to undertake and act upon self-reflection, underpins socio-emotional competence.

The place of empathy within moral development. Empathy is a contested element within the realm of morality and moral development. Historically empathy was considered to refer to the personal capacity and the desire on behalf of an individual to regulate their own behaviour out of consideration to others, thus displaying social sensitivity (Hogan, 1975). Greater debate has emerged from contemporary contributors, regarding the number and type of constructs that contribute to the evolution of morality, for example the suggestion that "human social sensibilities emerge from a sophisticated integration of emotional, cognitive, and motivational mechanisms that are shaped through cultural exposure" (Decety & Howard, 2014, p. 106).

An additional layer of complexity is presented when morality and moral judgement are contrasted (Decety & Howard, 2014). In this paradigm morality relates to an individual having, and responding to, societal norms regarding how people 'should' treat each other. There is an implied expectation of action within the word 'should'. Inherent in this definition is also a judgement regarding the degree of 'right and wrong' within behaviours, perceived from both a societal and personal level (Decety & Cowell, 2014). There is a strong link, highlighted in the neuroscience and cognitive psychology disciplines, between emotion and moral judgement (Decety & Howard, 2014). Affect is therefore fundamental to the internal processes of moral judgement. Moral judgement can be contrasted with moral behaviours, which are the actions that actually manifest from the expectation of action encompassed within moral judgement.

Further adding to the contested constructs identified within moral development, Carlo, Mestre, Samper, Tur, and Armenta (2010, p. 872) define prosocial moral reasoning as "decision making regarding helping opportunities when there is a conflict between one's own and others' psychological or physical needs in situations where there are no laws or formal social guidelines." Yet another contemporary extension suggests that cultural morality refers to societal norms placed on general behaviour, with personal morality that belongs to an individual (Freeman, 2008) .

Along a similar line of thought to the previously outlined concept of moral judgement, and further adding to the plethora of concepts and definitions within the discipline, moral reasoning is also presented as a quite separate construct to moral behaviour. The act of moral reasoning does not guarantee an outcome of moral behaviour (Henderson, 2005; Pagnin & Andreani, 2000). An alternative line of thought further confounds the definitional debate suggesting there are four elements that underpin morality: moral sensitivity, moral judgement, moral motivation and moral character (Tirri, 2002).

In the search for personal betterment however, all is possibly not lost. Moral development "does not simply represent an increasing knowledge of cultural values usually leading to ethical relativity. Rather, it represents the transformations that occur in a person's form or structure of thought…[and] people have the psychological capacity to progress to higher…stages of moral reasoning" (Kohlberg & Hersh, 1977, pp. 54, 55). Emerging from the notion of transformational moral thought and in alignment with Freud and others, Hoffman (1979), a significant contributor to this discipline in the latter part of the twentieth century, suggests that moral development refers to the adoption of societal norms that, over time become pivotal to an individual's motivational and affective behaviours. From this theoretical basis, Hoffman proposes a staged model of moral development which follows a cognitive-developmental perspective, reflecting the work of both Piaget and Kohlberg (Westen et al., 2006).

Further highlighting the diversity of thought within the literature is the notion that moral development is underpinned by the development of moral reasoning, which in turn is governed by social perspective-taking and sympathy (Helkama, 2011). Additionally there is a difference between ethics and morality, with the former referring to theoretical beliefs and morality being the enactment of those beliefs in one's life (Ambrose & Cross, 2009). Adding to the perpetual 'chicken and egg' style debate regarding the relationships within moral development is the idea that Eisenberg's Theory of Prosocial Moral Reasoning "suggested that empathy stimulates the development of moral principles and moral cognitions that reflect concern for others" (Hay et al., 2007, p. 6). In addition, Hoffman (1979) places empathy within the realm of moral development, suggesting that empathy is part of the affective influences upon morality.

This section has illustrated the plethora of definitional challenges within the historical literature on moral development and the place of empathy within it. More recently the

increasing prominence of neuroscience and advancements in technology has seen a new branch of the discipline evolve and contribute to the evolving understanding of empathy and its relationship to moral development.

Neuroscience and empathic responding. Empathic responses are influenced by perceptions and cognitions (Hoffman, 1981). This view is supported by much of the more recent research undertaken into the neurobiological bases for the manifestations of empathic responses (Zaki & Ochsner, 2012) that originate within a large number of brain structures, not just the cortex, and includes the endocrine system that controls emotions (Decety, 2010, 2011). Particular areas of brain function can be also associated with identifiable processes within the empathic continuum, for example self-reflection and separating self and others (Coutinho, Silva, & Decety, 2014). Empathy can be identified as consisting of two parts, these being cognitive and affective understanding that, when combined together, produce emotional understanding (Shamay-Tsoory, Aharon-Peretz, & Perry, 2009). Following from this is the suggestion that there are two systems that generate empathic responding: an emotional contagion system that operates at a basic level; and a higher-functioning cognitive perspective taking system (Shamay-Tsoory et al., 2009). The place of perspective taking in empathic responding predates the current neurobiological research, with Hogan (1975) suggesting that an empathic response requires adopting alternative perspectives to one's own behaviours. This is fundamentally a cognitive undertaking and thus provides foundational thinking for the neurobiological research that followed.

Anatomical mapping of the brain areas involved in empathic responding has been undertaken, and has separately identified the regions involved in these two systems of responses. These are the Brodmann area 44 for emotional contagion, with areas 10 and 11 being involved in cognitive empathy (Shamay-Tsoory et al., 2009). That these two systems,

whilst independently functioning, may indeed operate simultaneously depending upon the social context of the empathic response (Shamay-Tsoory, 2011).

Decety (2010, 2011) also supports the concept of cognitive empathy and suggests that in addition to language, executive function, self-regulation and metacognition, Theory of Mind is foundational to these responses (Decety & Svetlova, 2012). Theory of Mind refers to the capability to attribute a mental state to the self and other individuals in order to predict or explain behaviours (Blair, 2005; Eggum et al., 2011; Premack & Woodruff, 1978). These functions are overlayed upon existing and interrelated neurobiological social and emotional capacities, the circuitry for which continues through the maturation process until late adolescence (Decety, 2010).

Whilst emanating from a neurobiological standpoint, Decety (2010, p. 257) articulates the importance of empathy, stating that empathic responding "including caring and sympathetic concern, is thought to motivate prosocial behavior, inhibit aggression and pave the way to moral reasoning." Decety also notes that not all ramifications of empathy have a prosocial outcome. He suggests that when sympathy and personal distress, which can be experienced as a result of an empathic response, elicit a stress response in an individual, there may be an increased motivation to reduce stress through withdrawal, which in turn reduces the likelihood of forthcoming prosocial behaviours. However "mature empathic sensitivity and concern depend on their functional integration in the service of goal-directed social behavior" (2010, p. 260).

Neurobiological investigation reinforces the suggestions that mature empathic responding supports prosocial and moral behaviour and thus inhibits aggression and other antisocial behaviours (Decety, Michalska, & Kinzler, 2012). There is not, however, a flawless link between empathy and moral behaviour and highlight the implications for personality when there is a lack of demonstrable empathy (Decety & Cowell, 2014; Decety & Howard,

2014). The ‘dark triad of personality’ links an empathic deficit to Machiavellianism, narcissism and psychopathy (Wai & Tiliopoulos, 2012). Psychopathy may be identifiable through the trademark deficit in demonstrable empathy and this hypothesis is supported through comparative research with patients who are healthy and those with neurological damage. Results indicate a neurobiological connection between utilitarian judgements and a scarcity of empathic concern (Decety & Cowell, 2014).

Examination of empirical and theoretical research across multiple disciplines including psychology, developmental science and affective neuroscience suggests that empathy is:

> a natural competency that has evolved with the mammalian brain to form and maintain social bonds, necessary for surviving, reproducing and maintaining well being…Furthermore, the neural pathways involved [in] empathy and caring are facilitated and modulated by neuroendocrine mechanisms…and as a result enhances cognitive empathy…and empathic concern (Decety & Fotopoulou, 2015, p. 2).

Having explored the nature of empathy, its place within moral development and also the emerging role of neuroscience in understanding the phenomenon that is empathy, the following section will further examine the role of empathy in healthcare. It will explore compassionate care and compassion fatigue, and will identify further connections to the gifted education literature and the relationship of both empathy and gifted education within tertiary healthcare education.

The role of empathy in healthcare, including compassionate care

The importance of the relationship and understanding between the healthcare professional and patient has long been documented (Porterfield, 1960). Empathy within a healthcare setting can be defined as an “appreciation of the patient’s emotions and expression of that awareness to the patient” (Stepien & Baernstein, 2006, p. 524), which differs from the model of detached concern that is often postulated as preferable within medical literature (Halpern, 2003). Professional and trustworthy conduct is a core requirement in any

professional sphere however the inclusion of empathy in a medical relationship brings the full patient experience to the forefront of a healthcare interaction through a basis of compassionate care, irrespective of the health discipline. This has been recognised by the peak body for medical training in America, the Association of Medical Colleges, who recommend that the teaching and assessment of empathy should be included in healthcare training (Tavakol, Dennick, & Tavakol, 2011). When healthcare is practised with these traits at the core, practitioners will be well equipped to "acknowledge, absorb, interpret, and act on the stories and plights of others" (Charon, 2001, p. 1897). One view suggests that after professional competence, empathy is the most highly valued trait of a healthcare professional, by the patient and is a fundamental element within clinical competence (Colliver, Willis, Robbs, Cohen, & Swartz, 1998).

The clinical benefits for patients of an empathic and supportive relationship with their health professionals is well documented (Kerasidou & Horn, 2016), including adherence to treatment or care recommendations (Stepien & Baernstein, 2006), however the impact on the emotional well-being of those in the medical professions appears less frequently in the literature. Through their professional conduct, those individuals who engage in the helping professions place themselves, as a matter of course, in situations of significant stress, high emotion and frequently face traumatic situations. In addition to increased health outcomes for the patient, empathic communication can provide improved professional satisfaction, health and well-being for the healthcare professional as well as a reduction in malpractice proceedings (Decety & Fotopoulou, 2015). However, it is also possible that one of the potential outcomes of emotional involvement, when taken too far, may be compassion fatigue. When "empathy is seen as depending on emotional responses…a critical problem arises" (Halpern, 2003, p. 673). This further heightens the value of cognitive empathy, but

also provides an opportunity to assess the value of empathy as a combination of cognitive and affective functions (Shamay-Tsoory et al., 2009).

Compassion fatigue. There is a relentless professional challenge within healthcare: inherent in which is the balance between caring too much, not enough, or just the right amount; whilst retaining the personal stamina to maintain the balance. The result of this challenge may be the development of compassion fatigue as "people can be traumatized without actually being physically harmed or threatened with harm. Simply learning about the traumatic event(s) carries traumatic potential" (Figley, 1995, p. 6). Compassion fatigue, burnout or secondary traumatisation (Lester, 2010) was first identified within the health profession in the 1950s. In contrast to the work of Lester (2010), burnout, which manifests slowly and as a result of emotional exhaustion, has been contrasted with secondary traumatic stress. This can appear without significant warning and include symptoms of isolation, helplessness and confusion. Other names by which this phenomenon are known include compassion stress and secondary traumatic stress disorder and sits within the discipline area of traumatology (Figley, 1995). Compassion fatigue can be defined as:

> the natural, consequent behaviors and emotions resulting from knowledge about a traumatizing event experience by a significant other. It is the stress resulting from helping or wanting to help a traumatized or suffering person (Figley, 1995, p. 10).

Compassion fatigue has become an almost certain outcome in some supporting roles, although it has not yet been recognised within the DSM V (Kanno, 2010). It is possible, however, that the clinical adoption of sympathy, rather than empathy, is the catalyst to 'burnout' or potentially compassion fatigue (Stepien & Baernstein, 2006).

The terms 'compassion fatigue' and 'secondary traumatic stress (STS) or secondary traumatisation' are, in some instances used interchangeably within the literature, however the term secondary traumatic stress, which may be applied to various populations and not restricted to those within the healthcare professions, "describes the development of PTSD

symptoms" (Elwood, Mott, Lohr, & Galovski, 2011, p. 26) and includes cognitive changes within the individual concerned. In contrast, compassion fatigue relates specifically to those people in the front line of helping professions and "highlights a proposed consequence of the symptoms – that of a reduction in the capacity or interest in being empathic towards a client, believed to result from exposure to patients' difficulties combined with the ongoing expenditure of empathy towards patients" (2011, p. 26). The term compassion fatigue is more accepted by the individuals working within the related professions (2011).

Education, training and supervision for those in the helping professions, may help to mitigate against compassion fatigue (Elwood et al., 2011; Kanno, 2010) as may strategies based on mindfulness (Decety & Fotopoulou, 2015). Support for the idea of professional protection strategies is also provided by Merriman (2015) who notes there is an occupational risk of compassion fatigue for those who care for others and the inherent potential outcomes of this condition are extremely undesirable, not the least of which is premature departure from the profession. Whilst Merriman's work is centred on the counselling profession, there is a great deal of literature directed at the compassion fatigue phenomenon within other helping professions, including audiologists (Severn, Searchfield, & Huggard, 2012), clinicians (Elwood et al., 2011), doctors (Zenasni, Boujut, Woerner, & Sultan, 2012), emergency response workers, including paramedics (Mildenhall, 2012), nurses (Berg, Harshbarger, Ahlers-Schmidt, & Lippoldt, 2016), palliative care workers (Slocum-Gori, Hemsworth, Chan, Carson, & Kazanjian, 2013), social workers (Thomas, 2013) and medical students (Crumpei, 2014; Crumpei & Dafinoiu, 2012a, 2012b).

The empathic response of the healthcare professional and the potential stress associated with the constancy of working with people through varying degrees of traumatic experiences is likely to be causally related to the development of compassion fatigue and may also be linked to the altruistic nature of many healthcare professionals, thus exposing them to a

higher risk of compassion fatigue (Kapoulitsas & Corcoran, 2015). The previous discussion of compassion fatigue suggests that anyone involved in caring, may be vulnerable to experiencing a high cost of caring and students are not immune to this occurrence (Figley, 1995).

Compassion fatigue and empathic decline in healthcare students. There is much support throughout the literature regarding the empirical evidence surrounding the clinical benefits of empathy within healthcare settings (Ekman & Halpern, 2015). However, there is often a dichotomy between the established clinical benefits for the patient of an empathic relationship with the health provider (Watson, McMullen, & Steckley, 2014); this includes patient-centred communication (Passalacqua & Segrin, 2012), and much of the teaching within healthcare schools, both within the overt curriculum and that which is hidden. This may be based around long-established cultural factors within healthcare professions, and may occur as a response to the potential stress reaction in the caring professional; however the broader educative approach is based on a fear of emotional contagion between professional and patient, rather than a focussed empathic interaction (Ekman & Halpern, 2015). A more appropriate understanding of empathy could be couched in an approach focussed on 'professional empathy' which is based upon a professional curiosity regarding the symptoms or circumstances surrounding the patient and is followed by a response or interaction based upon empathy. There are three elements to professional empathy, being the "affective or emotional resonance, cognitive appraisal, and a motivation to act, guided by this cognitive-affective understanding (Ekman & Halpern, 2015, p. 635). Professional empathy is closely aligned with cognitive empathy.

There is, however, evidence of a transformation of both undergraduate and graduate students' motivation and responses as they progress through healthcare training (Hojat et al., 2009). These responses include diminished idealism and increased cynicism towards the

profession and a persistent erosion of empathic responding, particularly from the third year of study onwards. Hojat et al. (2009) found that whilst diminishing empathy-driven responding was evident in a significant majority of students, there did remain a group of 27% of students for whom empathic responding did not decline. Hojat et al. (2009, p. 1189) suggest that there must be some "protective factors that neutralize the erosion of empathy" that warrant further examination. A systematic review of studies of medical student empathy undertaken between 1990 and 2010 also points to the possibility of diminishing empathic responding during clinical training and residency based on the manifestation of varying forms of distress (Neumann et al., 2011). Elements of both the formal and informal curricula are considered significantly responsible for these outcomes, in equal measure with the hidden curriculum, which includes mistreatment, bullying and vulnerability of students or residents, high workload and diminishing support structures.

Mitigating against compassion fatigue and empathic decline. Distress amongst healthcare students may be mitigated by personality and biography (Neumann et al., 2011). Another factor that may help mitigate against compassion fatigue is the concept of resilience. Resilience is a potentially modifiable construct that was originally defined in the literature as a personality trait but is now viewed as a psychosocial process which is influenced by multiple variants.(Kapoulitsas & Corcoran, 2015).

A positive relationship appears to exist between social and emotional competencies and the reduction in stress, which may then also mitigate at least partially, against the development of compassion fatigue (Kinman & Grant, 2011). The association between social and emotional factors is also supported within social baseline theory which postulates that organisms are socially adapted and as a result "social proximity should be considered as the default or baseline assumption of the human brain…[as]…neural pathways and hormonal stress responses…are less active when social support is provided or even anticipated"

(Decety & Fotopoulou, 2015, p. 4). Thus, the "establishment and maintenance of social relationships, the resources of relational partners…as well as physicians…play a critical role in buffering against stress" (2015, p. 5). This theory is equally as relevant to the patient, as it is the management and/or mitigation of healthcare professionals' stress, emotional response and potential compassion fatigue response.

Slightly different relationships were found between self-compassion and mindfulness, rather than empathy or emotional intelligence, suggesting the former are positively correlated with resilience (Olson, Kemper, & Mahan, 2015). Despite the slight variances in correlates with increased resilience and/or reduction in compassion fatigue, there are potential benefits of profession-specific targeted interventions that enhance the development and maintenance of resilience (Kinman & Grant, 2011). There is also value in education around compassion fatigue and protective factors, such as resilience. Such education could be embedded in a supportive clinical supervision relationship that provides focus and shared understanding around compassion fatigue manifestation (Merriman, 2015).

In extending the understanding regarding the importance of resilience as a strategy to address compassion fatigue, it is important to note that there is a similarly synergistic relationship between the increase of resilience and the reduction of negative perfectionistic traits (Flett & Hewitt, 2014).

Perfectionism

Much of the psychological literature places perfectionism in a negative framework, one that is responsible for under-achievement, anxiety, stress and debilitating maladjustment (Mendaglio, 2007). Whilst an alternative perspective can be seen within the gifted education literature, the prevalence of negative connotations and pathology pertaining to perfectionism remains throughout many other disciplines, including athlete development (Barcza-Renner, Eklund, Morin, Habeeb, & Morin, 2016) as well as health care (Henning, Ey, & Shaw, 1998).

Perfectionism amongst healthcare students. The question of perfectionism amongst medical students, or healthcare students generally, has not attracted a great deal of empirical research. An initial study undertaken by Henning et al. (1998), however, identifies severe perfectionism as a personality trait that may increase an individual's disposition towards anxiety and other depressive disorders. The authors, in their study of medical, dental, nursing and Pharmacy students, found strong relationships between identified current psychological distress within the student cohort, and perfectionistic traits. This was unsurprising as "the admission requirements for medical school and the other health profession programmes favour students who set very high standards for themselves, and once accepted into such programmes students must continue to meet the high standards others set for them" (1998, p. 457). Previous studies examined psychological maladjustment during the years of training, but had not studied the psychological effect of perfectionism on such cohorts (Henning et al., 1998). Additionally, the authors observed that "studies with other populations have demonstrated a strong association between perfectionism and increased risk for depression, anxiety, obsessive-compulsive symptoms and suicide" (1998, p. 457). The authors found that over a quarter of the participants reported clinical levels of psychological distress and that students who reported high levels of perfectionism were also at significantly increased risk of psychological distress.

There is an inherent paradox between firstly, the academic focus and ability on behalf of a student that is required to achieve entrance into healthcare training and, secondly, the potential impact on interpersonal interactions from the increased incidence of perfectionistic responses that may accompany such academic discipline. In more recent work, a longitudinal study undertaken by Enns, Cox, Sareen, and Freeman (2001, p. 1035) noted that faultless "performance, meticulous attention to detail and high levels of competency generally represent desirable characteristics of medical students…[yet, these students]…may

experience extra self-imposed pressure." The authors identified two aspects within the construct of perfectionism: adaptive, being achievement oriented; and maladaptive which focusses on evaluative concern. The hypothesis postulated by Enns et al. (2001) suggested that healthcare students would display higher levels of adaptive perfectionism and lower levels of maladaptive perfectionism. The selection processes for these courses provided the rationale for this hypothesis. Entrance success was founded upon the consequences of two adaptive behaviour types; firstly, adaptive perfectionism via academic functioning, that is, students' prior educational grades and admission test scores; and secondly, adaptive interpersonal functioning which is ascertained through a pre-admission interview process and personal references. Maladaptive perfectionism may negatively impact students' academic and interpersonal performance, and thus reduce the likelihood of acceptance into the courses of study (Enns et al., 2001). Similarly admission into health profession courses favours students who set high academic standards for themselves, both prior to admission and once in the programme (Henning et al., 1998). Henning et al. (1998) found that the strongest predictor of distress in medical students was socially prescribed perfectionism, where an individual believes that others expect perfection and will criticise any sign of these standards not being achieved.

Perfectionistic tendencies amongst students may also contribute to increasing their vulnerability to secondary traumatic stress (Crumpei, 2014). A further study assessed any relationship between secondary traumatic stress and irrational beliefs in medical students (Crumpei, 2014). Whilst the results showed a weak relationship between the two concepts identified within the hypothesis, the study did identify that the participants presented a high level of irrational need for achievement and a "high and very high irrationality in personal self-worth and in their need for approval" (2014, p. 297).

In an Australian medical school study at James Cook University, Knights and Kennedy (2006) determined, through the administration of the Hogan Development Survey (Hogan & Hogan, 1997), that the majority of students entering the programme reported potentially dysfunctional personality traits that may negatively impact their adaptation to the rigours of the course. Specifically, the authors note that approximately one third of students reported scores that indicate potentially obsessive perfectionistic tendencies. Paradoxically, an alternative view suggests that "at least moderately high adaptive perfectionism…would seem necessary for students to be academically successful enough to gain entry into a medical training programme" (Enns et al., 2001, p. 1040). Whilst this work supported the hypothesis whereby adaptive perfectionism was significantly correlated with conscientiousness, there was also an unexpected positive correlation between adaptive perfectionism and neuroticism. Maladaptive perfectionism attained an extremely large correlation with neuroticism and was also significantly associated with the students' assessment of what constituted 'acceptable' performance at medical school. Thus maladaptive perfectionism may predict an increased risk of students experiencing a misalignment between their perceived acceptable level of attainment and their actual achievement level. This misalignment may be a source of distress, however the authors note that both types of perfectionism, adaptive and maladaptive, were associated with neuroticism and student dissatisfaction regarding personal academic performance and hence perfectionistic tendencies could also be the underlying source of student distress. Given the personal ramifications for students and their learning, this is an important factor to consider when delivering healthcare teaching and learning.

Perfectionism and giftedness. Perfectionism should not be universally aligned with giftedness nor considered a necessary, or more predominant trait, of gifted individuals (Mendaglio, 2007). Mendaglio provides detailed examination of both the empirical and non-empirical literature and concludes that whilst there are differing positions postulated in both

fields, the greater challenge lies in the empirically-based literature, where there are a variety of definitions applied to all constructs within the discourse, both psychological and pertaining to gifted education. In a quest to determine if there is a greater incidence of perfectionism amongst the gifted population when compared with the typical population, Mendaglio (2007, p. 229) undertakes a review of the literature and determines that "there is no empirical evidence that the incidence of perfectionism is greater among gifted individuals,…[specifically]…there is no evidence supporting the psychological construct of perfectionism as currently conceptualized as characteristic of gifted individuals." Whilst perfectionism, as defined within the psychological literature, does exist as a construct within the gifted community, it is no more prevalent there than it is throughout the broader population and as a result should not be identified as a characteristic of giftedness (Mendaglio, 2007).

Gagné's definition of giftedness is widely adopted across Australia, and is reflected in the student intake entering these courses. Students sit easily within the academic top 10% of each year's cohort and therefore, many students are likely to be gifted within their respective domains. In this case, the domain is likely to be 'Intelligence' (Gagné, 2010, p. 83). As a subsection of the broader population, there is likely to be an equal representation of perfectionism within the gifted community (Mendaglio, 2007). Therefore, there are pedagogically-based differences to be considered when mitigating for perfectionistic tendencies in a broader population including those who are academically, or intellectually, gifted. This can be undertaken through a greater understanding of, and consideration for, empathic development. It is therefore pertinent to consider the ways in which empathic responding is measured.

It is likely that within the general population of students who gain acceptance into healthcare courses there is a proportion who may have perfectionistic tendencies. The pre-

admission interview may be an effective strategy in identifying maladaptive perfectionism in potential healthcare student cohorts (Enns et al., 2001) and is also relevant in the Tasmanian context when considering strategies to mitigate for perfectionistic tendencies. The literature discussed suggests a number of moderating influences on these tendencies, not the least of which is empathic responding.

Healthcare courses, recruitment practises and academic giftedness

Not all healthcare schools participate in both parts of the recruitment process as outlined by Enns et al. (2001). The University of Tasmania is one where pre-admission interviews are not undertaken. Medicine, Paramedicine and Pharmacy students at the University of Tasmania are recruited locally, nationally and internationally based on their Australian Tertiary Admission Rank (ATAR) and the Undergraduate Medicine and Health Sciences Admission Test (UMAT) scores. Students are accepted in rank order based on these two scores, and are often in the top 2% of the University's first year cohort. Many of the students may be academically gifted, that is within the top 10% of their age-equivalents, as defined in Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2008, 2010). This model of giftedness identification is currently adopted by the majority of educational jurisdictions in Australia (Harper, 2013).

Given the previously explored relationships between empathy, compassionate care, giftedness and healthcare education it is pertinent to consider ways in which empathy may be measured. The following section presents four instruments that measure empathy. The authors are identified along with the inherent design elements and the testing and development processes utilised in each instance. These instruments were selected for inclusion in this analysis for a variety of reasons which are elaborated upon throughout the ensuing discourse.

Empathic measurement

Hogan's Empathy Scale is one of the earlier instruments designed for measuring empathy. It therefore plays an important part in the development of broader understanding around understanding the construct of empathy. Despite this pivotal role, there is significant concern regarding its value as a valid and reliable scale.

The Jefferson Scale of Physician Empathy was specifically developed for use in a healthcare setting (Hojat, Mangione, Nasca, et al., 2001) and has received broad acceptance as a useful scale within the healthcare setting. It has also been revised for other specific healthcare groups, including students.

Questionnaire Measure of Emotional Empathy (QMEE)/The Balanced Emotional Empathy Scale (BEES): These scales measure affective and emotional empathy respectively, with the QMEE developed in 1972 being updated into the BEES in 1996. The BEES aims to measure "vicarious experience of others' feelings; interpersonal positiveness" (Mehrabian, 2016).

The Interpersonal Reactivity Index (M. H. Davis, 1980, 1983) has broad application in empathic measurement and is one of the more accessible tools for this purpose. It is also used within the present study to identify empathic responding and therefore warrants further scrutiny.

Instruments that aim to measure empathy

The Hogan Empathy Scale. This scale is one of the earlier measurements of empathy and was considered one of the most popular and accessible tools for assessment of empathy in healthcare through the 1980s and into the 1990s (Froman & Peloquin, 2001). Previous attempts to measure empathy had been met with significant methodological and validation issues (Hogan, 1969). Given that defining the construct that is 'empathy' is challenging, in this instance empathy is defined as "the intellectual or imaginative apprehension of another's

condition or state of mind without actually experiencing that person's feelings…Empathy refers only to the act of constructing for oneself another person's mental state" (1969, p. 308). Hogan tested the commonly accepted psychological definition of empathy with a conception of an empathic person held by a group of non-psychologists. He did, however, conclude that empathy "refers to a relatively discrete social phenomenon recognizable in the experience of laymen and psychologists alike" (1969, p. 309).

The first step in Hogan's scale development involved the collation of empathic characteristics using the California Q-sort (Block, 1961). Examples of highly empathic behaviours were cited as "socially perceptive of a wide range of interpersonal cues…[and]…has insight into own motives and behavior" whilst examples at the other extreme included "judges self and others in conventional terms like 'popularity', 'the correct thing to do,' social pressures etc…[and]…extrapunitive; tends to transfer or project blame" (1969, p. 309). Items for inclusion in the empathy scale were derived from comparison with other contemporary measures, including the California Psychological Inventory and the Chapin Social Insight Test. Emerging from this process sixty-four true/false items were identified for inclusion in the empathy scale and later reduced to thirty-nine items. The test produces a score ranging from 0-39 and measures empathy as a unidimensional construct (Jarski, Gjerde, Bratton, Brown, & Matthes, 1985).

The underlying premise of the empathy scale lies in the potential correlation of the scores from the scale with Q-sort-derived empathy ratings. This correlation was used to test the validity of the scale. The correlation between the scale and the empathy ratings from the original participants used in the development phase was $r = .62$, $N = 211$ however when the correlation was measured with an independent sample only $r = .39$, $N = 70$ was achieved. Hogan also suggests that the original sixty-four item scale has a test-retest reliability of .84 (Greif & Hogan, 1973).

Through this process Hogan established a description of the behaviours of an empathic person and it is these descriptions that underpinned the scale development. As established earlier, the recent work of Decety (2010) suggests there is not always a direct causal link between the empathic response and prosocial behaviours. This does raise the question whether Hogan's scale was in fact measuring empathic responding or perhaps the likely occurrence of prosocial behaviours or moral reasoning (Hogan, 1969; Johnson, Cheek, & Smither, 1983).

The validity of Hogan's Empathy Scale was also questioned in later literature. Hornblow, Kidson, and Jones (1977) undertook a validation study of Hogan's Empathy Scale utilising the empathy scale of the Relationship Inventory (Barrett-Lennard, 1962) as a point of comparison. The intent of this study was to determine the usefulness of the Hogan Empathy Scale in the context of medical education. With consideration to the highlighted limitations of the study, Hornblow et al. (1977, pp. 10, 11) found "negligible correlation between the Empathy Scale and the RI empathy scales" and when "using clinically-related criteria…[the study]…failed to demonstrate that the Empathy Scale is a valid and accurate measure of empathy in clinical situations."

In attempting to further assess Hogan's Empathy Scale, Johnson et al. (1983) undertook a Factor Analysis of the instrument, however they adopted a Likert-type response option rather than using the original dichotomous response style. This decision was based upon prior psychometric research: "Factor analysts generally agree that it is hazardous to analyse such data" (1983, p. 1301). The authors also note that the original study by Hogan (1969) did not explain why the identified factors actually related to the construct of empathy. This is particularly significant given the apparent face validity issues with some of the included items. A noteworthy example of an item with dubious face validity is 'I prefer a shower to a tub bath' (1983, p. 1309).

A similar finding was documented by Jarski et al. (1985) who undertook a comparison study using four empathy instruments, three of which were behaviourally based, and one, being the Hogan Empathy Scale that used a self-report methodology. There were only low correlations between the findings from the two separate methodologies, but strong consistency between the three behaviourally based instruments. It may be that the two styles of instruments were in fact measuring different variables or that there was a problem with the face validity of Hogan's Empathy Scale, when administered to medical students (Jarski et al., 1985).

With these significant questions raised about the validity and inherent value of Hogan's Empathy Scale, a further study was undertaken by Froman and Peloquin (2001, p. 566) specifically designed to "study the stability, internal consistency, factor structure, and convergent and discriminate validity." A total of 320 occupational therapy students were the participants in the study. The findings of the study called into question "the continued, uncritical use of the Hogan Empathy Scale to study empathy and its correlates in research in the health professions…Given these findings, researchers may wish to suspend their use of the EM [Hogan's Empathy Scale]" (2001, p. 571). Hogan's Empathy Scale was designed for use with a general population, rather than specifically healthcare (Yu & Kirk, 2009).

The Jefferson Scale of Physician Empathy. The Jefferson Scale of Physician Empathy (JSPE) (Hojat, Mangione, Nasca, et al., 2001) is a 20-item instrument designed to measure empathic responding in the patient-physician relationship (Hojat, Mangione, Gonnella, et al., 2001). The authors suggest the rationale for this instrument sits within the biopsychosocial medical paradigm. They suggest that the most effective medical education includes both the bio-medical elements of disease and psycho-social factors of illness, as "curing occurs when the science of medicine (biomedical aspect of disease) and the art of medicine (psychosocial aspect of illness) emerge as one discipline" (Hojat, Mangione, Nasca,

et al., 2001, p. 350). The authors further support this integration by reference to the World Health Organization (WHO) constitutional definition of health (as cited in Hojat, Mangione, Nasca, et al., 2001, p. 350), which is holistic in nature and refers to "physical, mental and social well-being."

A fundamental element of such holism is the establishment of interpersonal relationships. Hojat, Mangione, Nasca, et al. (2001) argue for this. Further, sympathy and empathy are fundamental elements of such relationships, however Hojat, Mangione, Nasca, et al. (2001) differentiate between these two responses. For them, the fundamental difference between the two concepts lies in the 'joining' of emotional response. Empathy is the understanding and appreciation of the other's state, but without the act of 'joining' the emotional response. This definition is similarly supported by Fields et al. (2011) who consider empathy to be a primarily cognitive quality. Sympathy, however, encompasses the joining of one person into another's feelings or emotional state. This is similar to emotional contagion which may be considered as the act of emotional convergence (Hatfield, Cacioppo, & Rapson, 1993) or the 'catching' of emotions (Doherty, 1997). At the time of developing the JSPE, Hojat, Mangione, Nasca, et al. (2001) noted that there were but a few instruments designed to operationalise empathy and those that did exist were developed for use within a general population rather than with physicians.

The process of instrument development began with the design of a preliminary version, based on a review of the literature that elicited 90 items for inclusion, each measured with a 7-point Likert-type scale. Throughout the development phase the participants (N = 289) were divided into three sub-groups. The initial pilot testing used a variation upon the policy Delphi, developed by Linstone and Turoff (1975), where a heterogeneous sample is used to explore "conflicting opinions…with the objective of cultivating a more complete understanding of points of consensus and disagreement about a particular topic" (Kezar &

Maxey, 2016, p. 144). Further, Yeh, Van Hoof, and Fischer (2016, p. 43) define the Delphi method as "structured and systematic information-gathering from a group of experts" through the administration of consecutive questionnaires undertaken by specialists in the area being studied (de Souza, Contim, Guimarães Ferreira, dos Santos Costa, & D'Innocenzo, 2015). Of the 100 physicians approached to participate in the initial pilot testing, with just over half responding (n = 55). The respondents were senior academics, being "either faculty members at Jefferson Medical College or directors of internal medicine residency programs at other postgraduate institutions known personally by the investigators" (Hojat, Mangione, Nasca, et al., 2001, p. 353). From these results and the ensuing statistical analysis, the modified, 45-item, version of the inventory was developed.

The modified version of the inventory, along with the Interpersonal Reactivity Index (M. H. Davis, 1980, 1983), was subsequently completed by resident physicians (n = 41). The medical students (n = 193) also undertook a variety of research instruments, however it appears that this did not include the Modified Empathy scale, rather the students were administered a "45-item Sympathy scale for medical students" (Hojat, Mangione, Nasca, et al., 2001, p. 356). It is unclear if this scale is a separate inventory that is uncited, or whether it was in fact the modified 45-item Empathy Scale and has been misreported in the literature. The latter is likely given consequent correlational conclusions.

Twenty items were retained for inclusion in the JSPE, with 3 items having negative factor structures and utilising reverse-scoring. Four constructs of physician empathy were illuminated:

1. the physician's view of the world from the patient's perspective,
2. understanding the patient's experiences, feelings and clues,
3. ignoring emotion in patient care; and
4. thinking like the patient

An additional change in the instrument occurred between the 2001 ‘development’ study and the 2009 version. The latter iteration included an increase in the number of reverse-scored items. In the initial study there were only 3 items utilising this technique, whereas Hojat et al. (2009) report that 10 items are each directly- and reverse-scored. There are also different versions of the inventory, each with a focus on a specialist client group, for example medical students, or physicians, or health profession students in areas other than Medicine. One version of the instrument is the Health-Provider-Student version (Fields et al., 2011), however psychometric testing of this version revealed only two factors, those being compassionate care and perspective taking (Fjortoft et al., 2011). The two-factor model was subsequently further supported in an Australian study with 330 paramedic participants (Williams, Brown, Boyle, & Dousek, 2013).

The scores from the original JSPE correlated with data from other empathy instruments utilised in the study, including the Interpersonal Reactivity Index (IRI) (Hojat, Mangione, Nasca, et al., 2001, pp. 362-363). These figures however, were noted as comparatively small, and thus the authors suggested there was “limited overlap with other concepts…[including] ...perspective taking”, which is one of the constructs of empathy measured by the IRI. Davis (1983, p. 113) actually suggests that empathy should be considered as a set of related, but at the same time separate, constructs; rather than as a “single, unipolar construct.” The authors’ evaluation of Davis’ (1983) identification of the multidimensionality of empathy via four constructs leads Hojat, Mangione, Nasca, et al. (2001, p. 363) to agree that “empathy is a unique personal trait that is multidimensional”.

Given the limitation of small participant numbers, particularly the resident physician group, the initial reporting identified future psychometric work to be necessary, using a “larger, more representative sample of physicians and other health professionals” (Hojat, Mangione, Nasca, et al., 2001, p. 363).

Following the initial development of the Jefferson Scale of Physician Empathy, further studies have been undertaken both with a view to either simply apply the instrument within a study, or to assess its psychometric properties, or both. Hojat et al. (2009) undertook a longitudinal study utilising the JSPE and two intakes of medical students (n = 227, n = 229). As a result of that study, the authors (2009, p. 1182) argue the importance of an instrument to measure empathy specifically within the both the medical education context and that of patient care stating:

Medicine at its core is a human service profession. Cultivating humanistic values in general and enhancing interpersonal skills and empathy in particular are of paramount importance in any human service endeavour…[and]…the American Board of Internal Medicine recommended that humanistic values and empathy should be cultivated and assessed as an essential educational activity in…medical education.

The focus on the cognitive elements of empathy is retained (Hojat et al., 2009), as outlined in the 2001 study and the authors further refine their definition of empathy within the context of medical education and consequent patient care. This retains the contrast with 'emotional joining' that is akin to 'contagion', however the revised definition also encapsulates the importance of "understanding…patients' experiences, concerns and perspectives combined with a capacity to communicate this understanding. An intention to help…is an additional feature of empathy in the context of patient care" (2009, p. 1183). This study also presents a sophisticated differentiation between the concepts of empathy and sympathy within the medical education and patient care context. The authors articulate that empathy, even in excess will enhance the patient-physician relationship and they suggest there is a clear linear relationship between the two. In contrast, sympathy within this context would be detrimental to the process of clinical decision-making, and therefore, ultimately to patient care. In addition to placing emphasis on the personal and professional outcomes for

the physician, Hojat et al. (2009, p. 1183) state that cognitively "defined empathy always leads to personal growth, career satisfaction, and optimal clinical outcomes, whereas affectively defined sympathy can lead to career burnout, compassion fatigue, exhaustion, and vicarious traumatization."

Further, Hojat et al. (2009) contend that there are unique constructs within both empathy and sympathy. They suggest that affect and emotion sit within sympathy and that cognition and understanding are embedded within empathy. The constructs that exists within empathy may be significantly enriched through the process of education, whereas the constructs associate with sympathy are less likely to be responsive to change processes (2009).

A large, longitudinal study (Quince, 2014; Quince et al., 2016), lead from the University of Cambridge, examines the development of empathic responding through the course of multiple undergraduate and graduate medical programs. No significant change in empathic responding was identified over the course of the training. This challenges the findings of Hojat et al. (2009) who found a clear change in responding during and beyond the third year of training. This highlights the need for further exploration within this area of study.

Questionnaire Measure of Emotional Empathy (QMEE)/The Balanced Emotional Empathy Scale (BEES). The QMEE (Mehrabian & Epstein, 1972) was developed to measure emotional empathy. The intent was to follow the school of thought established by Stotland (1969) that placed empathic emotional responsiveness at the centre of the operational definition of empathy, which contrasted with the work of Dymond (Dymond, 1948, 1949, 1950; Dymond, Hughes, & Raabe, 1952) that maintained a "cognitive role-taking approach" (Mehrabian & Epstein, 1972, p. 525).

The final QMEE contained seven subscales measured through 33 items, which were drawn from a larger collection. Elimination from the item pool was based upon three components: insignificant correlation results against the Social Desirability Scale of Crowne and Marlowe (1960), "significant…correlations with the total score on the scale, and…content validity inferred in part from a larger pool of items" (Mehrabian & Epstein, 1972, p. 527). Mehrabian and Epstein (1972) made a direct association between the construct of empathy that they attempt to quantify through their scale, with socially desirable behaviours as measured by the work of Crowne and Marlowe (1960, p. 350) who define such behaviours as those "which are culturally sanctioned and approved." The processes around the 'inference' of content validity also appear questionable. The self-report scale computes a unidimensional measure of empathy by utilising a scoring system of -4 to +4. Subsequent examination also found the information regarding scale formation to be limited and not replicable (Dillard & Hunter, 1989), whilst other authors have suggested that the instrument may be confounded (Baron-Cohen & Wheelwright, 2004).

During the mid-1990s the QMEE was revised to become the Balanced Emotional Empathy Scale (BEES) (Mehrabian, 1997). Like its predecessor, the BEES is a self-report questionnaire-style instrument, however the new version uses thirty items, with a 50% split of positively- and negatively-worded phrases. There is no repetition of items between the two scales (Mehrabian, 1997). The responses to each item range, on a 9 point scale, from -4 to +4. Again, this scale treats empathy as a unidimensional construct through the calculation of a single score by "subtracting the sum of responses to all negatively worded items from the sum of response to all positively worded items" (1997, p. 440). Subsequently, Windows-based software has been developed to aide dissemination of the scale (Mehrabian, 2016).

The Interpersonal Reactivity Index. The Interpersonal Reactivity Index (IRI) is a 28-item multidimensional assessment tool designed to measure the global concept of empathy (M. H. Davis, 1980, 1983). It is a self-report Likert-type quantitative tool that aims to measure four subscales of empathy: fantasy, perspective taking, empathic concern and personal distress (Gilson & Moyer, 2000; Mooradian, Davis, & Matzler, 2011). The IRI does not provide one 'empathy score', but retains the separateness of the four constructs to facilitate the independent measurement of the effects of each subscale on respondent behaviour. In this way Davis (1980, 1983) recognises both the cognitive and emotional reactivity that, he asserts, combine as the multidimensional construct that is empathy. Davis is critical of some previously developed instruments that either identify empathy as embodying only a singular dimension, or where a potentially multi-dimensional measure is consolidated to produce one, single numeric value for the over-arching construct of empathy. For Davis this treatment, along with lack of robust definitions of constructs, are serious shortcomings of some prior work.

The initial development documentation notes that first the subscale Fantasy, is designed to assess the degree to which an individual may become involved in imaginary or fictitious worlds, created through books, movies, plays or other creative media. Davis (1983) hypothesised that scores on the Fantasy subscales would exhibit a relationship to global measures of emotionality. He based this notion on the work of Stotland, Mathews, Sherman, Hansson, and Richardson (1978). They developed the Fantasy-Empathy scale and reported that people who score highly on that scale "tend to display greater physiological arousal (palmar sweating) to a filmed depiction of another's emotional experience" (M. H. Davis, 1983, p. 115). Three items on the fantasy subscale were drawn from the Fantasy-Empathy scale and therefore Davis (1983) concludes that the relationship to emotionality would be replicated within the new instrument. Similarly he notes that the other items within the

Fantasy subscale assessed similar content, thus reinforcing the replication of the emotionality relationship.

The second subscale, Perspective Taking, aims to measure the tendency for an individual to make "spontaneous attempts to adopt the perspectives of other people and see things from their point of view" (M. H. Davis, 1980, p. 2). Davis (1983) provides the psychological rationale for the cognitive nature of this subscale with reference to work undertaken by scholars such as Piaget and Mead who suggest that perspective taking is central to non-egocentric functioning. Davis (1983) also credits the work of Piaget and Mead with dramatically shaping the nature of research in this area with the inclusion of a cognitive focus, thus adding to the study of emotional elements within the discipline.

Empathic Concern is the third subscale measured within the IRI and "assesses 'other-oriented' feelings of sympathy and concern for unfortunate others", including warmth (M. H. Davis, 1983, p. 114). Davis also notes that since the Empathic Concern subscale measures a specific emotional response, there was no expected relationship between that construct and elements of social functioning or self-esteem. A relationship was anticipated, however, with more global emotional responses since the construct of 'emotional reactivity' is central within empathic concern where concern for other people is foundational.

The final subscale measured by the IRI is Personal Distress and "measures 'self-oriented' feelings of personal anxiety and unease in tense interpersonal settings" (M. H. Davis, 1983, p. 114). Davis (1983) also suggests that there will be clear, negative relationships between the Personal Distress subscale and measures of social functioning and self-esteem because people who have anxiety-based responses in emotional social situations will have greater difficulty is establishing and retaining successful social relationships, which then has a flow-on, negative impact on self-esteem.

In the development of the IRI, the scale evolved through several iterations (M. H. Davis, 1980). The first version adopted over 50 items and was administered to 542 people. The initial factor analysis identified four factors which remained stable and were included in the final instrument. The second iteration of the instrument utilised 45 items that were a combination of pre-existing items from the original version, modified original items; and purposefully written items designed to address one of the four identified subscales. This was then administered to 427 first-year psychology students in group sessions. Factor analyses were again run for both male and female respondents and the results validated the original four-factor model. The items that were included in the final iteration of the scale were those that both rated most highly and did not rate on more than one subscale, thus ensuring that each item was focussed and not open to confounding the results. The results of all statistical analyses undertaken in the development of the IRI are published in Davis (1980) and the convergent and divergent validity data pertaining to each of the subscales is published in Davis (1983). These topics are addressed further in Chapter 3.

Whilst Davis (1980, 1983), in the development of this instrument, acknowledged the cognitive and affective styles of empathic responding, he was clear that the IRI was designed and tested to measure four separate constructs of empathic responding. Chrysikou and Thompson (2015) suggest that the predominant uses of the IRI are purporting to measure the two higher order elements of empathic responding, being cognitive and affective empathy. The authors highlight the lack of psychometric analysis to support the two-factor version and, within the documented study, undertake a confirmatory factor analysis that demonstrated the inappropriateness of this model. The authors strongly recommend that the IRI is administered in its original, four-factor format where the subscales have successfully undergone rigorous psychometric testing.

Questions have also been raised regarding the appropriateness of the inclusion of the Fantasy and Personal Distress subscales within the IRI as not all authors consider that these constructs accurately reflect contemporary understandings of empathy. The Empathic Concern subscale has also been scrutinised, with some researchers considering that is more closely associated with 'sympathy' (Baldner & McGinley, 2014).

This section examined four quantitative measures of empathy and the literature around each. These instruments and their subsequent analysis provide a better understanding of the complexities regarding the measurement of empathy and its place within the human personality. An additional perspective on the development of personality which includes the construct of empathy is provided through the analysis of Dąbrowski's Theory of Positive Disintegration. It is through the lens of Dąbrowski's theory that a different perspective on the development of personality and the associated traits of compassion and empathy can be gleaned. The following section provides a detailed exploration of Dąbrowski's Theory of Positive Disintegration which both contributes to the understanding of the literature but provides an additional structure through which to consider the results of the following research study.

Dąbrowski's Theory of Positive Disintegration

> The juxtaposition of inhuman forces and inhuman humans with those who were sensitive, capable of sacrifice, courageous, gave a vivid panorama of a scale of values from the lowest to the highest (Dąbrowski, 1975, p. 233).

Dąbrowski's Theory of Positive Disintegration has its origins in the experiences of life and all the colours therein, that subsequently provide the foundation for individual development and growth. Without these experiences, these 'colours' "the whole sense of life sinks into the sea of senselessness" (Dąbrowski, 1976, p. 132).

Dąbrowski's Theory of Positive Disintegration is a grand theory of personality development that is hierarchical and multilevel in nature (Battaglia, 2002; Dąbrowski, 1996; Hague, 1976; Mendaglio, 2008a). At the centre of the Theory are two "qualitatively different phases of mental development…[The lower phase, or portion, is] unconscious or only partly conscious and is determined by biological forces or the influences of the external environment" (Dąbrowski, with Kawczak, & Piechowski, 1970, p. 5). The higher phase is self-aware and deliberate, cognisant of the developing self, with a sense of place in the environment and aware of the developmental power of authentic, deliberate choices. The higher phase reflects the non-ontogenetic nature of the development of true personality where "developmental instinct acts against the automatic, limited, and primitive expressions of the life cycle" (Dąbrowski, 1964, p. 2). It is in this phase where the mental, or psychological, forces of an individual combine with the individual's value system to determine the direction and degree of development (Mendaglio, 2008c). These phases exist at either end of a personality continuum (Tillier, Foreword in Dąbrowski, 2017).

Importantly, 'personality', which is achieved after passage through all the levels of development, is the "highest empirically recognizable structure of the human psyche.

Personality is the aim and the result of disintegrative development. Its final form appears in the process of secondary integration" (Dąbrowski et al., 1970, p. 79). An individual who has a fully developed personality will display:

> the scope and level of the most essential positive human qualities…[They will be] an individual…who possesses, in a high degree, the capability for insight into his own self, his own structure, his aspirations and aims (self-consciousness)…that his aims are of essential and lasting value (self-affirmation), and who is conscious that his development is not yet complete and is therefore working internally on his own improvement and education (self-education) (Dąbrowski, 2015, p. 2).

Whilst an hierarchical approach to development is not unique (Westen et al., 2006), this theory is differentiated by a number of factors, including the significant role given to emotions in the developmental process (Ackerman, 2009; Mendaglio, 2008c; Piechowski, 1975). Within the Theory of Positive Disintegration, emotions are a catalyst for influencing personality development and its subsequent direction. Such development is achieved through the power of emotion to stimulate disintegration and reintegration processes (Mendaglio, 2008a). Additional factors that set Dąbrowski's work apart from other theories of personality development include the concept of multilevelness (Dąbrowski, 1996), and the emphasis on the developmental role of 'positive disintegration' that occurs as part of the disintegration process (Dąbrowski, 2015). The latter facilitates the passage to a higher level of functioning and a more fully developed personality (Dąbrowski, 2017; Mendaglio, 2002; Webb, 2012). The development of a fully formed personality is by no means automatic, or indeed achieved by all. In fact, the majority of individuals will not develop higher than Level II (Ackerman, 2009). This is a fundamental point of differentiation between Dąbrowski's Theory of Positive Disintegration and other developmental theories where, with the passage of time and increasing age, all individuals will achieve the highest levels (Miller & Silverman, 1987).

Overview of the Theory

Dąbrowski's Theory of Positive Disintegration is an hierarchical theory of personality development based on a sequence of levels and the processes and characteristics that underpin passage between and through these levels (Ackerman, 2009; Alvarez-Calderon, 2010; Dąbrowski, 2015).

Five levels of development. Dąbrowski's Theory of Positive Disintegration comprises five levels of development that are not based on biological maturation. Personal development is fluid in nature and an individual may not begin their journey at the lowest level, however it is similarly possible for an individual to move up and then regress to a level lower than their commencement point (Ackerman, 2009). Within the Theory of Positive Disintegration, levels are differentiated from a notion of stages. A level is "a distinct identifiable developmental structure. It is not a temporal sequence, which makes it distinct from a stage" (Dąbrowski, 2015, p. 17). A further element of complexity is interwoven throughout the Theory, as an individual may simultaneously experience structures of two or possibly three adjacent levels. These structures potentially manifest in different areas of life, values or psychological/emotional responding. A duality such as this may see an individual respond in one scenario at for example, Level II, where a particular set of emotional responses are engaged, however that same individual may respond at Level III in another set of circumstances. These emotional responses and the structures therein operate in conflict with each other until a resolution is achieved.

Level I is Primary Integration. This level is akin to that with which a child is born. Primary needs such as food, sleep, basic movement, are central instinctive needs which must be met (Dąbrowski, 2015). Primary Integration is a cohesive and balanced state, where there is no evidence of psychological development (Mendaglio, 2008a). Whilst some people will grow beyond these structures as they develop, others will retain these characteristics

throughout adulthood and are unaware of and unresponsive to other aspects and levels of reality. At this level "cognitive and emotional structures…are automatic, impulsive, and rigid" (Dąbrowski, 1996, p. 18). People functioning at this level lack the capacity for internal conflict, but will externalise conflict and responsibility (Rankel, 2008). Individuals display an egocentric demeanour with little if any inhibition (Miller & Silverman, 1987).

Level II is Unilevel Disintegration and is the first stage of disintegration. This level involves a time of inner conflict, identity confusions, even anxiety or despair. Within Unilevel Disintegration an individual may have heightened sensitivity to external factors, and experience mood fluctuations or swings, from extreme enthusiasm to a state of depression (Dąbrowski, 1996). These emotional responses may trigger a limited capacity for decision making. At this level the sensations and transitions are linked to the biological life cycle and are not related to the more developed autonomous transformations that occur at later levels. Level II is very much a transition phase from Level I and either leads to further disintegration at Level III or to a regression back to the stability of Primary Integration. If an individual does not pass through this level, in either direction, the consequences could result in "psychoses or suicide" (Mendaglio, 2008c, p. 37) as they are 'stuck' in a disintegrative phase without stability of cognition or emotion.

Level III is Spontaneous Multilevel Disintegration. This is a pivotal level where the individual's hierarchy of values begins to emerge and starts to influence behaviour. This change occurs as a result of self-reflection, evaluation and enhanced self-perception. With this emergence may come significant personal inner-struggle or turbulence, however this is an essential individual quality for personality development that provides the essences of an individual's developmental self (Dąbrowski, 1976). An awareness of conflict between the ideal and existing self ensues and the individual "can make conscious and volitional choices about what to emphasize and what aspects to inhibit" (Tillier, 2008b, p. 106). These

behaviors are moulded by a hierarchy of values and life goals that emerge and transform over time. They are autonomous and conscious, embedded within the emotional discovery of self. The inner conflict experienced therein is a crucial element in the process that leads to positive developmental transformation (Dąbrowski, 1996). This conflict is "always between 'what is' as opposed to 'what ought to be' " (Dąbrowski, 2015, p. 35).This process is at the core of the concept of multilevelness on which the Theory of Positive Disintegration is based (Mendaglio, 2008a). The capacity for an individual to 'step out of themselves' to view, both subjectively and objectively, their place in the world is foundational to a multilevel understanding of the world, and also the basis upon which an individual's personality ideal will be shaped.

Level IV is Organised Multilevel Disintegration. Here the individual takes conscious control over life and personal development. Level IV also provides a platform for the reduction of inner conflict and the increase of stability in an individual's hierarchy of values, through the emergence of significant developmental dynamisms (Hague, 1976). A dynamism is a "biological or mental force controlling behavior and its development" (Dąbrowski, 1972, p. 294). With the stabilization of the value system comes increased self-awareness and the capacity for self-analysis, with 'subject-object in oneself'(Dąbrowski, 1996) and the 'Third Factor' (Bailey, 2010) emerging as key dynamisms. Dynamisms are discussed in detail later.

Level V, or Secondary Integration, is, according to Dąbrowski the pinnacle of human development and "marks a new organization and harmonization of personality" (Dąbrowski, 1996, p. 19). In this level there is a transcendental quality to personality and the human essence. Individuals who have achieved personality, or who are in the process of accelerated development, will "exemplify hierarchical, multisided, and multilevel mental health, which is an expression of their multidimensional growth" (Mika, 2008, p. 151). Dąbrowski's Level V characteristics align with Søren Kierkegaard's 'Knight of Faith', Friedrich Nietzsche's

‘Superhuman’, and Plato’s ‘Governing Class’ (Tillier, 2008b). Whilst Dąbrowski’s Theory highlights five levels of development, other theorists, for example Abraham Maslow (1908-1970), also suggested that people may reach their full potential through an incremental, developmental process, for example self-actualisation (Maslow, 1965). However, there is a fundamental difference between the Hierarchy of Needs theory and the process of self-actualisation therein (Huitt, 2007) and Dąbrowski’s Theory of Positive Disintegration. Dąbrowski asserts that within the Hierarchy of Needs there is no evidence of multilevelness or the individual’s capacity for self-reflection (Tillier, 2008a). This lack of multilevelness then manifests in a lack of conscious decision making regarding values and behaviours which are necessary to move an individual towards the personality ideal, which is “an individual standard against which one evaluates one’s actual personality structure” (Dąbrowski, 1996, p. 42). Personality, in comparison with the previously-defined personality ideal, is only achieved when the individual reaches Level V. Personality means “a self-aware, self-chosen, and self-affirmed structure whose one dominant factor is the personality ideal” (Dąbrowski, 1996, p. 42).

Progression through the hierarchy. Transition between levels within Dąbrowski’s Theory of Positive Disintegration is not automatic, is not achieved by all individuals, nor is it related to age or biological maturation. There are additional aspects of the theory which interweave to provide the mechanisms by which movement between the levels is explained. Underpinning these aspects is the notion of ‘developmental potential’. Developmental potential is “the original endowment which determines what level of development a person may reach under ideal conditions” (Dąbrowski, 1996, p. 13), including the relationship between an individual’s developmental outcomes and the interactions with and between the Three Factors of Development.

Three Factors of Development

The three governing factors that, according to Dąbrowski's Theory of Positive Disintegration, influence the development of the personality ideal are: heredity, environmental and social influences, and the Third Factor. They are a complex matrix of influencing factors that may facilitate the transition of an individual through some, or in a small number of cases, all of the five levels of development. Each factor is depicted at the top level of Figure 4, with the equal importance of each factor visually depicted by their placement at the same level within the figure. Figure 4 is derived from a graphical map of the Three Factors of Development (Harper et al., 2017). The current iteration, a development of this image, includes the relationship with the Disposing and Directing Center that sits within the Inner Psychic Milieu.

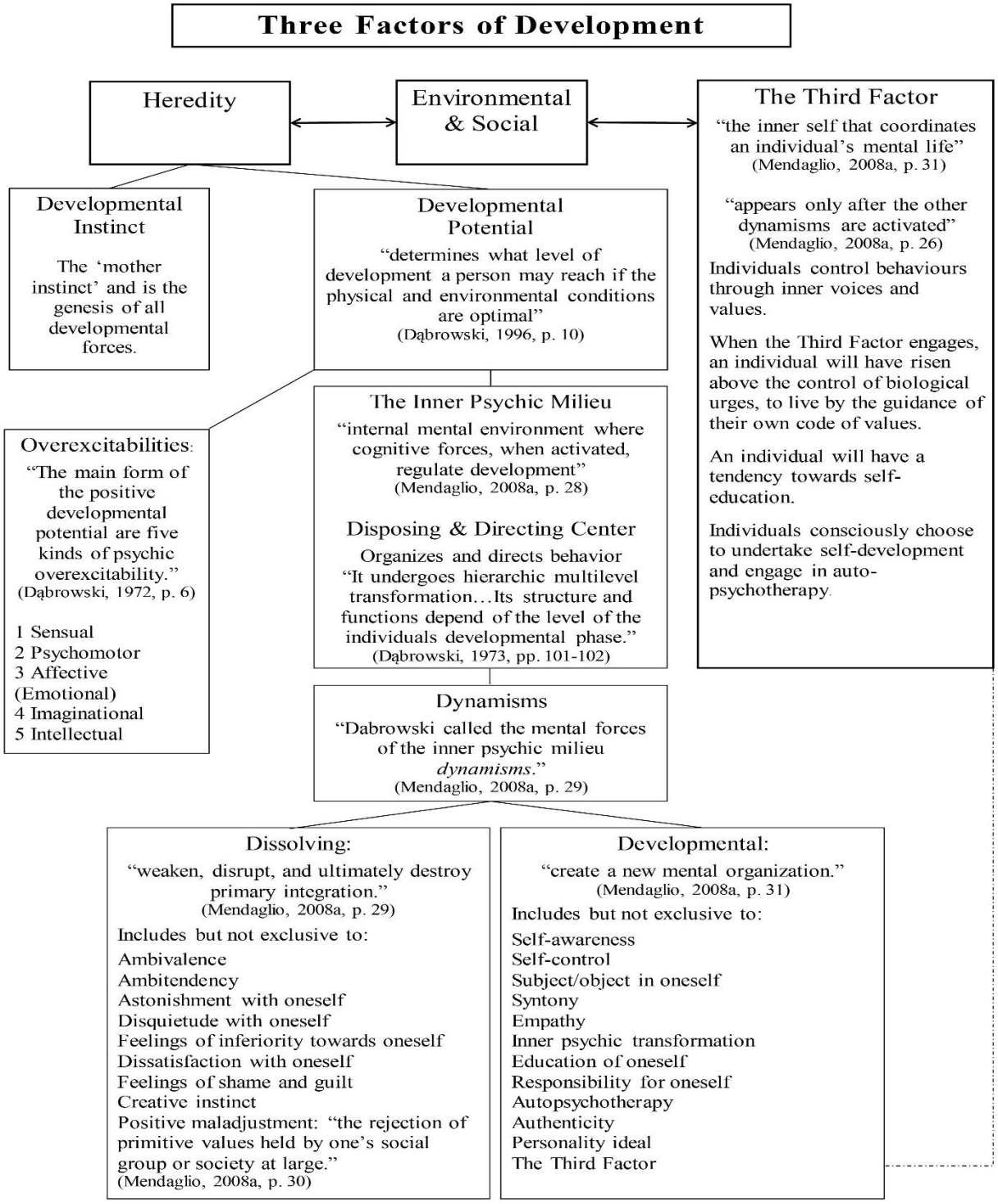

Figure 4. The Three Factors of Development.

The first two factors of development are heredity and the environment. The role of these two factors as key influencers in an individual's development is not new to theories of development. There is however, a significant point of difference between Dąbrowski's work and that of other theorists. This difference is based around the critical role regarding the emotional responses to developmental crises. Examples of these responses, which are also elements identified within the Theory of Positive Disintegration are "feelings of guilt, of shame, of inferiority or superiority, of the 'object-subject' process, of the 'third factor', and of so-called psychopathological symptoms" (Dąbrowski, 1964, p. 22). The recognition of the importance and the role of elements such as those listed was at the time and remains so today, a view that sits apart from mainstream psychological thinking. Dąbrowski's Theory of Positive Disintegration recognises, through the Three Factors of Development, the capacity for these elements to change through the process of positive disintegration. As this change occurs, the emotional elements and responses lose their primitive characteristics and evolve "to new levels of expression in the cycle of human life" (Dąbrowski, 1964, p. 23).

The First Factor of Development. Heredity is the "innate constitutional characteristics and potentialities of the organism" (Dąbrowski, 1996, p. 14). Writing under his pseudonym, Dąbrowski points to the imperative nature of the genetic endowment of the First Factor, stating that no "experiences, no shocks, no breakdowns will trigger growth if the embryo of what is to develop is not there" (Paul Cienin, 1972, p. 38).

Dąbrowski is not unique in his thinking regarding heredity, however he places emphasis on the future potential that already exists within the individual at birth. The First Factor has been compared with the work of Sigmund Freud (1856–1939) and his concept of 'id' (Mendaglio, 2008b) and with the work of Constantin von Monakow (1853-1930) and Raoul Mourgue (1886-1950) who describe the mother instinct as "horme (agitation, force, internal drive)" (1928, as cited in Dąbrowski, 2015, p. 45). The forces of movement that sit within an

individual are acknowledged within the Theory of Positive Disintegration and classified within the concept of 'developmental instinct'. The First Factor of development was also compared the work of Jean Piaget (1896-1980) who also detailed the importance of heredity and environment (Dąbrowski, 1996). The fundamental difference between the Theory of Positive Disintegration and the work of Piaget lies in the crucial function of positive disintegration as the catalyst for development, particularly the inclusion of psychoneuroses and the autonomous elements of the development process.

Within Dąbrowski's First Factor of development there are two distinct elements: Developmental Instinct and Developmental Potential. Within the Developmental Instinct sits the genesis of all developmental forces, including the natural biological life cycle. As the true personality emerges with it come the drives and tendencies that support the individual to move beyond, or transcend, the basic programming within the lifecycle. It is these tendencies that allow the individual to explore and engage with greater depth and meaning within life. As such, there "arises a sort of 'sidetrack', which after some time may become the 'main track' [of life]" (Dąbrowski, 2015, p. 43).

Developmental Potential is also part of the individual's genetic endowment (Piechowski, 1979) and carries the blueprint for the level of development that may be reached by any individual, should environmental and physical conditions remain optimal (Dąbrowski, 1996). Developmental Potential makes its first appearance through the manifestation of the five overexcitabilities and also the activation of the Inner Psychic Milieu.

Overexcitability. Overexcitability, in its most succinct and transparent form "is a higher than average responsiveness to stimuli [either external or internal] due to heightened sensitivity of nervous system receptors" (Mendaglio, 2008a, p. 24). Higher than average refers to intensity, duration and frequency of responses to stimuli, or combinations therein (Dąbrowski, 1996). There are five forms of overexcitability identified within the Theory of

Positive Disintegration (Dąbrowski, 1966, 1967, 1973, 1996; Dąbrowski et al., 1970). Where an individual experiences multiple overexcitabilities one type will appear as dominant over the others (Dąbrowski, 1996).

Emotional Overexcitability is a function of the experiential aspect of emotional relationship or attachment, whether this relationship be with a person, a place or another living thing. Emotional Overexcitability is distinct from simply experiencing an emotion, even intensely. Dąbrowski provides the example of a child who throws a tantrum to demonstrate anger. This is an example of an emotional response without a relationship. If the child were to be sad and feeling unloved, then the emotional response is based on a relationship (Dąbrowski, 1996, pp. 72-73). The latter is one source of Developmental Potential. An emotional response based on a relationship does not infer the existence of Emotional Overexcitability however the reverse is the case; that is, the presence of Emotional Overexcitability does imply the presence of a relationship of some kind. Emotional Overexcitability may manifest in ways including, but not limited to: existential anxiety, inhibition, exclusive relationships, loneliness, concern for others, ecstasy, humility (Dąbrowski, 1996) and is "of fundamental importance in the formation and shaping of a hierarchy of values, empathy, identification, self-consciousness, autonomy, authenticity" (Dąbrowski, 1973, p. 173).

Imaginational Overexcitability refers to behaviours such as creativity, retrospection, prospection, daydreaming, contemplation, and planning. It may also manifest through the "the use of image and metaphor in verbal expression, [and] strong and sharp visualization" (Dąbrowski, 1996, p. 72). Imaginational Overexcitability may be associated with fantasy or dreaming. The term 'positive immaturity' reflects and places value upon, the child-like wonder experienced by those individuals who have Imaginational Overexcitability (Mika, 2008).

Intellectual Overexcitability, particularly when "in conjunction with Emotional and Imaginational Overexcitability, gives rise to scholarly creativity, to the growth of reflection and self-control, of autonomy and authenticity, of an autonomous hierarchy of values, of the dynamism 'subject-object' in oneself and of the third factor" (Dąbrowski, 1973, p. 173). Intellectual Overexcitability, along with the other forms of overexcitability, constitutes the portion of the Theory of Positive Disintegration that has been most widely adopted by the gifted education community with reference to gifted learners. This, however, is frequently occurs, particularly in the gifted education literature, in isolation from the rest of the Theory (Piechowski, 2002; Rinn & Reynolds, 2012; Wirthwein & Rost, 2011).

Sensual Overexcitability refers to the capacity for heightened sensory stimulation and responsiveness, both in terms of specific senses, for example "smell, sight, and hearing…[but also a] general sensual overexcitability [that] embraces the whole structure of a particular individual and is distributed more or less evenly over the separate senses" (Dąbrowski, 2010, p. 54). This overexcitability includes the capacity of an individual to be enamoured with objects or people, and to experience similarly strong levels of dislike.

Psychomotor Overexcitability occurs as a result of excess energy and may display through a variety of physical activities including sport, but may also appear as a general restlessness or fidgeting. Other manifestations may include rapid speech, impatience and the biting of finger-nails (Dąbrowski, 1996).

The concept of overexcitability is based on heightened stimulation of the nervous system, which manifests in one or more areas. Dąbrowski (1973) drew comparisons with the work of both Sigmund Freud (1856-1939) and Pierre Janet (1859-1947), however both Freud and Janet conceptualised the role of the nervous system in a markedly different way to that within the Theory of Positive Disintegration. Freud associated heightened activity of the nervous system with psychoneurotic processes, whilst Janet considered such heightened

activity to be an “introductory global state before the development of psychoneuroses” (Dąbrowski, 1973, p. 147). Janet’s approach aligned more closely with Dąbrowski’s thinking, however Dąbrowski believed increased nervous system activity to signify “the first stage of accelerated and universal development” (Dąbrowski, 1973, p. 147). This is critical, as without this catalytic preparatory stage the individual has no capacity for moving beyond the rigidity of the biological life cycle, progressing through the levels of development, or developing a full personality.

Imaginational, Intellectual and Emotional Overexcitabilities are identified as ‘the big three’ (Mendaglio, 2008c) and particularly when the three occur together, provide the impetus for the emergence of significant multilevel dynamisms (Dąbrowski, 1972). These three overexcitabilities “are essential to the development of the inner psychic milieu” (Dąbrowski, 1996, p. 73).

Importantly, each of the overexcitabilities, as with all responses based in personality development in the Theory of Positive Disintegration, manifest in a multilevel way. For example, Imaginational Overexcitability at Level II will be markedly different to the outworking of Imaginational Overexcitability at Level IV. As an indication of the significance of multilevelness Dąbrowski provides extensive descriptions of the manifestations of responses, behaviours and concepts at the varying levels of personality development within *Dynamics of Concepts* (Dąbrowski, 1973) and *Multilevelness of Emotional and Instinctive Functions* (Dąbrowski, 1996). Additionally, if an individual’s personality includes overexcitabilities and dynamisms, they will display an exceptional manifestation of their dominant overexcitability, in unique combination with the other elements in their personality (Dąbrowski, 1996).

The Inner Psychic Milieu. The second constituent of Developmental Potential is the Inner Psychic Milieu, an over-arching array of structures within an individual’s

consciousness, which “may be hierarchical, as in multilevel disintegration, or ahierarchical, as in unilevel disintegration” (Dąbrowski, 2015, p. 284). The Inner Psychic Milieu is the second element within Developmental Potential. By contrast, the inner milieu refers to the physiological makeup of an individual.

Personality does not develop or change without the influence of a number of external factors (see Figure 4). Change or growth however, is not possible without the activation of the Inner Psychic Milieu as “it is in the inner psychic milieu that the formative process takes place” (Dąbrowski, 2015, p. iii).

Whilst the Inner Psychic Milieu has its genesis in the inner milieu, it is a psychological response to the physical sphere and is not really evident at all in an individual’s development until they reach Level II (Dąbrowski, 1973). The conflict in and between the inner milieu and the Inner Psychic Milieu, and the emotions generated from this conflict, comprise the catalyst for transformation (Rankel, 2008). It is the structure of the Inner Psychic Milieu and the dynamisms that are found within it that determine the resulting impact upon personality development. The mixture of dynamisms, emotions and responses will vary significantly between individuals (Dąbrowski, 1996).

When the Inner Psychic Milieu is fully functioning, it must be related to hierarchical and multilevel behaviors and consciousness. In such conditions the Inner Psychic Milieu is a “dynamic mental structure which appears significantly only at advanced stages of mental development, basically at the time of multilevel disintegration” (Dąbrowski et al., 1970, p. 24).

The Disposing and Directing Center. The Disposing and Directing Center is a structure that sits within the Inner Psychic Milieu (see Figure 4). It is multilevel in its conception and is an over-arching and guiding center that ‘stage manages’ the direction of individual development from within the Inner Psychic Milieu (Dąbrowski, 2015). As with all

elements of Developmental Potential, the Disposing and Directing Center has its genesis in an individual's genetic endowment and contains the blueprint of elements for the longitudinal developmental potential of the individual.

The Disposing and Directing Center is not a rigid structure and there is great capacity for it to undergo hierarchical transformation as the individual moves to higher levels of development and towards the personality ideal. As such, the nature of this inner leadership also depends on the level of development of the individual. At lower levels the Disposing and Directing Center is subjugated to the drives and desires of the individual at their given level. As development occurs however, the Disposing and Directing Center morphs into a position of leadership that is guided by higher level responses and emotions and navigates the individual's passage through the levels of development until that individual experiences multilevel disintegration (Dąbrowski, 1996).

The Disposing and Directing Center has two simultaneous functions: it both operates in the moment, and refers to the group of factors, including dynamisms that are influencing behaviour at any given point in time. This is similar to the Third Factor, which is discussed later, that also sits both separately from, and within, the suite of dynamisms that provide the catalysts for personality development.

At its simplest, the Disposing and Directing Center operates at Level I where there is no sense of inner conflict. The intellect is used as a tool for the delivery of lower level functions and there is great cohesion in the psyche, albeit at a lower level of functioning. At Level I, the Disposing and Directing Center is static, along with all other personality traits and there are no active dynamisms. Dynamisms are discussed in detail later, and their place within the Theory of Positive Disintegration has been previously depicted in Figure 4. If the Level II dynamisms of ambivalence and ambitendency are activated, the Disposing and Directing Center is aroused and begins to respond to their activation. At this point, the Disposing and

Directing Center simultaneously becomes “a dynamism which coordinates, plans, organizes and governs the activity of the psyche in a definite domain at a given time” (Dąbrowski et al., 1970, p. 79). At this level, the Disposing and Directing Center is characterised by a sense of imbalance of variable duration, depending on the dynamisms that are active at any given time, with varying centres pulling in differing directions, as is characteristic of ambivalences and ambitendencies.

Once the individual moves into Level III, the Disposing and Directing Center again transforms and the development of hierarchical responses and awareness occurs. At this time other dynamisms associated with this level of development are also activated and work in concert with the Disposing and Directing Center to “subordinate lower drives to higher centers” (Dąbrowski, 1973, p. 103). Throughout Level III, and through the transition into Level IV there remain tendencies for lower level directions to emerge and ‘tempt’ the individual to a lower level. It is not until the turmoil of Level III is surpassed and Level IV is established, that the Disposing and Directing Center becomes unified based upon the personality ideal (Dąbrowski, 1996). This unification occurs as the individual makes conscious, authentic and defined choices regarding their own self. It is here that ‘subject-object’ in oneself and the Third Factor are prominent dynamisms. Once the individual moves to Level V, Secondary Integration, or the cusp thereof, the Disposing and Directing Center has synthesized with the associated dynamisms. The personality ideal is now achieved and is therefore the only identifiable dynamism in Level V. Thus, the Disposing and Directing Center “develops its own activity in unity with personality through ‘insight’, meditation and contemplation” (Dąbrowski, 1973, p. 103).

Dynamisms. As personality transformation takes place, the change comes under the control of the individual’s inner self through catalysts called dynamisms (Mendaglio, 2008a). Dynamisms are the mental power-house of an individual; encapsulated by the Disposing and

Directing Center they sit as part of the Inner Psychic Milieu (see Figure 4). Inner conflict is a necessary part of the developmental process. The intensity of this conflict, along with the number of dynamisms that are activated, determines the rate at which the development takes place. That is, the more dynamisms that are engaged, and the more conflict that is experienced between levels of development, then the more accelerated the overall developmental process may be (Dąbrowski, 1996).

Dynamisms are a combination of biological tendencies, intellectual processes and emotions that control an individual's behaviour and development (Dąbrowski, 2015; Harper et al., 2017). These can be divided into two categories: dissolving dynamisms, also known as disintegrative dynamisms and developmental dynamisms (Dąbrowski, 2015; Mendaglio, 2008a). A sample from both dissolving and developmental dynamisms is presented in Figure 4.

Dissolving, or disintegrative, dynamisms. These are the catalysts for the initial process of disintegration and "weaken, disrupt, and ultimately destroy primary integration" (Mendaglio, 2008a, p. 29). The dissolving dynamisms provide the 'Sturm und Drang' (Storm and Stress) (Grout, 1981) necessary for the breaking down of existing mental, emotional and personality structures, which in turn impels the subsequent development of higher personality traits through developmental dynamisms. Dissolving dynamisms "are a kind of separating tool, that helps to 'clean' and develop the individual's personality ideal and the disposing and directing center" (Dąbrowski, 1967, p. 162).

Two examples of dissolving dynamisms that begin the disintegrative process are ambivalence and ambitendency. These dynamisms usually manifest together and are prompted by changes in the individual's feelings and emotional basis. Ambivalence and ambitendency are the only dissolving dynamisms that are classified as unilevel, as they are found in Level II. All other dynamisms are considered multilevel (Dąbrowski et al., 1970) as

these are manifest in and across Level III and Level IV. Ambivalence manifests as "the coexistence in one person of opposite and conflicting feelings" (Delbridge & Bernard, 1993, p. 26). Examples of these contrasting feelings are: like and dislike, superiority and inferiority, and "foresight into the unknown future or reflection into the experienced past" (Dąbrowski, 1967, p. 105). These occur without a great focus on the present (Dąbrowski, 1964) and may include fluctuations of mood (Dąbrowski, 1996). Ambitendency is characterised by conflicting or opposite actions. Ambitendencies are the physical manifestations, through actions, of the changeable mental attitudes defined within 'ambivalence'. Ambivalence and ambitendency may also, if the dissolving process resolves in a positive manner, provide the nuclei of an awareness of hierarchical values and their subsequent development. With the beginnings of hierarchization comes inner conflict, another dissolving dynamism which signifies the beginning of the transition to Level III.

An additional dissolving mechanism of particular importance for growth is Positive Maladjustment. As this dynamism activates, the individual makes conscious choices regarding the societal values and norms that had previously been accepted without question and are now seen as incongruous with one's new higher set of values (Dąbrowski, 2015). Within this concept is the suggestion that an individual's original mental structures are "aimed at gratifying biological needs and mindlessly conforming to societal norms" (Mendaglio, 2008a, p. 18). Pressure for the latter conformity is exerted through significant social expectation. Positive Maladjustment is therefore:

> the attitude of rejection of the primitive requirements of a social group. It expresses the need for adaption to a higher hierarchy of values, to the ideal, to that which "ought to be"; thus, it expresses the drive toward positive development, self-perfection, and realization of the attitudes of autonomy and authenticity (Dąbrowski, 1973, p. 66).

As a dissolving dynamism, the function of Positive Maladjustment to stimulate discontent with the status quo, and thus self-reflection begins. At this point the individual

develops a level of discontent within themselves which is the essence of the concept of ‘maladjustment’. The resolution of this tension can be directed in an upward, or positive, fashion, or it may appear as an interruption in the descent back to Level I. Where Positive Maladjustment has been activated, then the resolution will be a positive one, with the individual being selective and considered and rejecting the automatic acceptance of societal norms. Positive Maladjustment is contrasted with the concept of negative adjustment, which is a synonym for conformity (Dąbrowski, 1973). Negative adjustment equates with the mindless acceptance of societal norms and a focus on primitive, basic needs without any evidence of considered selection; and importantly this stifles the processes of reflection and selectiveness required for an upward passage through the levels of personality.

Through Positive Maladjustment the individual makes conscious, self-aware choices regarding their own existence, akin to the ‘Either/Or’ concept in the writings of Kierkegaard, whose work was a significant and continued influence on Dąbrowski’s thinking (Dąbrowski, 1964, 1967, 1972, 1973, 1996; Dąbrowski et al., 1970). Tillier (2002) also recognizes comparisons between the philosophy of Dąbrowski and that of Kierkegaard, suggesting that both thinkers place freedom and authenticity in centre of the individual’s conscious choices leading to the evolution of self, beliefs and values. The philosophical and faith-based influences upon Dąbrowski are addressed later in this chapter. Additional dissolving dynamisms, as identified in Figure 4, stimulate the loosening of structures to facilitate further development towards the personality ideal.

Developmental dynamisms. These dynamisms facilitate the vertical movement towards the personality ideal as the activation of these dynamisms provides the structures for higher level development. The unilevel dissolving dynamisms of ambivalence and ambitendency appear in Level II, however without the activation of the developmental dynamisms, the process of disintegration as stimulated by the dissolving dynamisms, may be

temporary and therefore the individual will return to Level I (Dąbrowski, 1996). Other developmental dynamisms might be activated, in which case the process of positive development may continue. For instance, the Level II dynamisms of syntony and identification, from the Syntonic Continuum (see Figure 5), can also be active. The Syntonic Continuum is addressed in detail later in this chapter.

Level III is a catalytic hierarchical level where many elements that have the capacity to shape or guide personality development are in conflict and collision. This level is a tumultuous experience for the individual based around the intense clash between a sense of 'what is' within their life, for example thoughts, behaviours, social groups, and society, versus 'what ought to be', which is designed by the developing personality ideal and hierarchization of values. This sense of inner conflict is a signature dynamism of this level. External conflict is apparent too, but tied to the inner conflict previously mentioned, as the root cause of the external turmoil stems from a "conflict of moral principles and human ideals" (Dąbrowski, 1996, p. 37). With this conflict comes the beginning of an existential awareness along with its associated questions, conflicts and possibly, angst. The intensity of these experiences is dependent upon the individual suite of dynamisms that are active at any particular time, however at this level emotional overexcitability is a dominant force (Dąbrowski, 1996). The dynamism of creativity which is aligned with emotional overexcitability may also emerge at this level.

Dynamisms at Level IV move away from the turmoil of the previous level as both inner and external conflicts ease and "the unifying power of the personality ideal increases in intensity" (Dąbrowski, 1996, p. 38). At this time the hierarchy of values also becomes more stable and contributes to the increased unification and the developing sense of peace within the Inner Psychic Milieu that is fully formed in Level V.

Also appearing within the transition from Level III to Level IV are two developmental dynamisms that contribute to self-analysis and produce an awareness of behaviours that are less than those identified within the personality ideal are self-awareness and self-control. These dynamisms gain complexity and strength as development continues. Additionally, and related to these, Dąbrowski suggests that there are two types of perception of reality for each individual. These perspectives are the subjective and the objective viewpoints with "the ability to approach oneself as an object…[being] in direct proportion to the ability to approach others as subjects" (Dąbrowski, 1973, p. 124). Subject-Object in Oneself is a developmental dynamism whereby an individual undertakes the process of stepping away from them self to then reflect upon and observe their own thinking, values and behaviours, thus facilitating critical self-evaluation. The genesis of Subject-Object in Oneself may appear as the individual moves from Level II to Level III and manifests at Level IV through introspection and self-observation. The point of difference, however, between a suggestion of the developing dynamism and of its full manifestation is the continuing desire within the individual for further personality development (Dąbrowski, 1996). In the fully developed dynamism of Subject-Object in Oneself there is a strong cognitive component that facilitates the self-evaluation element of this dynamism. In order for self-evaluation to occur, the individual must have developed or be developing a hierarchy of values. The individual must also have capacity to make personal, guiding choices based upon the concept of 'what is' versus 'what ought to be' within their own lives. Thus, it is both the capacity for self-evaluation, and the associated decision-making based on a hierarchy of values, which signifies the multilevel manifestation of this dynamism.

The commencement of Level IV is signified by the activation of the higher level dynamisms, such as capacity for self-reflection through Subject-Object in Oneself and the higher forms of syntony that are pre-requisites for the development of empathy (Dąbrowski,

1973). Further details regarding syntony and empathy are provided later within the discussion of the Syntonic Continuum. The Third Factor is also an essential dynamism at this level and will be elaborated upon shortly.

The higher levels of the Theory of Positive Disintegration bear witness to significant developmental changes in the individual's personality structure. This is Inner Psychic Transformation. True developmental changes in personality occurring at Level IV bring permanent change to an individual with "changes in the emotional structure…[being] the most crucial" (Dąbrowski, 1996, p. 39). This is not merely a temporary suppression of characteristics, but a fundamental change, where original behaviors do not recur during periods of stress. Inner Psychic Transformation manifests in many ways, however there are two prominent spheres in which this takes place. The first of these spheres is the transcendence of the biological life cycle by mental and emotional forces that facilitate "a continuation of creativity in spite of aging, continuation of psychic growth past maturity, expansions of emotional experience with age and deepening of love and friendship" (Dąbrowski, 1996, p. 39). The second sphere of prominent outworking of Inner Psychic Transformation is through the transcendence of psychological type. This can be identified by individuals introducing "traits of opposite type, for example an extrovert becomes somewhat introverted, or an impatient…person becomes patient and gentle" (Dąbrowski, 1996, p. 39). Similar characteristics may be discernible at lower levels, for example through self-control and consideration of others. It is, however, the underlying depth of personal reflection, engagement with other dynamisms such as autopsychotherapy and education of oneself; along with the permanence of the personality development that truly signifies Inner Psychic Transformation at this higher level.

Again, as an individual moves higher towards or is on the cusp of moving from Level IV to Level V, additional dynamisms emerge; these include "autonomy and authenticity,

education of oneself and autopsychotherapy, disposing and directing center on a high level and ideal of personality" (Dąbrowski, 1973, p. 115). The dynamisms of empathy, responsibility and self-perfection are also key dynamisms in the achievement of the personality ideal, which at Level V becomes "the primary source of both inner life and of outwardly expressed behavior" (Dąbrowski, 1996, p. 43).

When considering the development of empathy from a Dąbrowski perspective it is vital to have an understanding of its place within the five levels of development, including when it emerges and its relationship to the concept of syntony. There are extensive references to both these concepts across the majority of Dąbrowski's writings on the Theory of Positive Disintegration, however the structure of the works and the complexity of the concepts have made these quite inaccessible. The following section aims to clarify Dąbrowski's concept of syntony and crystalize its relationship to empathy, which will increase both accessibility and applicability of these constructs and more broadly Dąbrowski's Theory of Positive Disintegration. In the context of this thesis, this analysis and synthesis will provide greater understanding of empathy, its development and an additional lens through which to analyse the results of the study.

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Through the Dąbrowski lens: Empathy and the syntonic continuum

The purpose of this paper is to explore the notions of syntony and empathy within the human personality as outlined in Dąbrowski's Theory of Positive Disintegration, which is a multilevel theory of personality development. Dąbrowski et al. (1970, p. 38) stated that it "is deeply human to experience one's own affliction and to empathize with that of others". This notion provides the stimulus for a thorough examination of Dąbrowski's treatment of the development of empathy within the Theory of Positive Disintegration. A detailed description of the full Theory, including the levels of personality development, is beyond the scope of this paper, however for further reading suggested sources include Dąbrowski (1964), Dąbrowski (1996), Mendaglio (2008c) and Harper et al. (2017). Similarly, contemporary literature provides further insight into the construct of empathy, including the contribution of neuroscience (Decety, Smith, Norman, & Halpern, 2014), however this paper is to focus on the contribution to the literature of Dąbrowski's Theory of Positive Disintegration.

Within the conceptual framework provided by the Theory of Positive Disintegration, not all elements of personality develop simultaneously; and not all people will have the capacity for higher level development. The notion of multilevel transformation is however, fundamental to the Theory of Positive Disintegration and is also vital to the development of higher level personality traits, including empathy. Through multilevel transformation comes individual growth and the opportunity to "increase our orientation in the world, deepen and refine our syntony with the surroundings and result in the formation of a self-conscious and self-determined personality" (Dąbrowski et al., 1970, p. 2).

Syntony

There are two types of impulses that are evident within the ontogenetic or maturational evolution of an individual. These are autotonic and syntonic impulses. Autotonic instincts "are egocentric, such as the drive for self-preservation, possessions, and power; syntonic

instincts are heterocentric, such as impulses of sympathy, sexual drives, cognitional and religious drives, and social needs" (Dąbrowski, 1964, p. 11). As development occurs, some of these lower level impulses may move from being autotonic to syntonic responses. So, the term 'syntony' is used within Dąbrowski's writings to describe a sense of balance and oneness. This refers to a state where there is no inner turmoil and no conflict, but there is a deep sense of connection and unification with existence in the world. This contrasts with autotonic responses which are self-focussed and display little interest in or understanding of other individuals, groups or communities. A sense of syntony experienced by an individual can manifest at both extremes of the personality continuum, meaning a stable syntonic state may exist at level I, Primary Integration, and also as an individual moves from level IV, Organised Multilevel Disintegration, to level V, Secondary Integration (Dąbrowski, 1967).

Lower level syntony may be mistaken for sympathy (Dąbrowski, 1973), however sympathy is actually one of the manifestations of a lower level syntonic response. The tendency for some of these opposing lower level impulses and drives to overlap or to be contradictory provide, within the individual, a tension or conflict which creates a catalyst or internal energy. For some people this may provide a trigger for further development, akin to a form of potential energy for development, which "gives rise to a new balance, a new complex of compromise, a new development of personality" (Dąbrowski, 1964, p. 11). The concept of syntony has an overarching value within the Theory of Positive Disintegration, as the nuances associated with the existence and transformations of syntony provide significant information that contribute to the identification of developmental level (Dąbrowski, 1996, p. 70).

Levels of Syntony. Syntony as a lower level response is an harmonious state based in societal synchronicity, where natural, albeit primitive qualities influence existence - where there is no inner conflict or turmoil, nor even a small internal question regarding behaviors, attitudes, or social interactions. There is a sense of synchronicity with people and the world

around, with thoughts, actions, behaviors and intentions all reflecting a lower level of development. Lower level syntony can manifest in many ways, from simple acts of cooperation to collective activities or responses. Examples of these manifestations may include outbursts of enthusiasm, protests or communal celebrations, and possibly responses similar to what is understood by emotional contagion, which is a physical, not cognitive response (Mendaglio, 2008a).

Despite the sense of 'group' that is apparent within a syntonic response, syntony itself is not a shared feeling. It is one held by the person who is experiencing it. This sense of synchronicity is also not shared by others within the communal response or behavior; there is no sense of self-awareness of attitudes held, or reflection upon responses offered. This sense of syntony facilitates an equilibrium of co-existence (Dąbrowski, 2015).

A syntonic-based response is not necessarily socially or culturally acceptable. Members of a lynch mob or rioting group for example, may well be experiencing a sense of syntony with the group and be caught up in the momentum of the group-think and not have any wavering of conscience, all whilst conducting behaviors that are not more broadly considered socially acceptable.

Syntony at lower levels displays as spontaneous behaviors which are "not much different from gregariousness" (Dąbrowski, 2015, p. 295). Specifically, syntony at Level I, Primary Integration, is a "primitive temperamental syntony" (Dąbrowski, 1996, p. 179) which responds to momentary fluctuations in mood and comprises autotonic instincts including self-preservation (Dąbrowski, 2015). This may manifest in a type of 'group-think' or a sense of belonging, for example in sporting teams, cultural sub-groups, or participation in other group activities. Syntony at this level is influenced only by the group and may equally be a socially positive response, for example celebrating after a sporting win; or a negative response, for example laughter that is "evoked by watching someone's misfortune or humiliation"

(Dąbrowski, 1996, p. 55). This lower level syntonic behavior or attitude is compromised when a conflict of interest occurs or a personal, vested interest is threatened, at which point syntony may be replaced with an aggressive response (Dąbrowski, 1996). The transition from a sense of syntony to the aggressive response which is seated in asyntony is symptomatic of the extremely primitive syntony common at this level. Asyntony is "a constitutionally compulsive behavior determined physiologically" (Dąbrowski et al., 1970, p. 94). Young children also provide an example of syntony at this level. They do not have a deep understanding of social interactions, norms or expectations, but their responses are instinctual. Many "human individuals never go beyond this [Primary Integration] level of syntony" (Dąbrowski et al., 1970, p. 2).

Level II, or Unilevel Disintegration, witnesses the emergence of impulsive, reflexive syntony. At the lower end of this level these responses are still automatic and superficial, demonstrating undifferentiating identification with others and do not include any reflection on attitudes or behaviors. As Level II syntony develops, there is a slight shift in the place of others in the motivation of an individual's responses which suggests a developing increase in concern for the feelings of others or thoughts of a social code (Dąbrowski, 1996). As syntony at this level develops there is also a desire for the company of other people and the beginnings, although not consistently, of value placed on their opinions and feelings. For the first time, the individual may inhibit responses, for example anger, based on the developing syntony with others. This however remains a reflexive response, without conscious thought and appraisal. Similarly an individual may, on occasion, demonstrate identification and syntony with another and put the other's needs before their own; however this is not based in a long-term attitudinal commitment and will alternate "with periods of return to primitive attitudes" (Dąbrowski, 1996, p. 131).

As Level II responses develop, ‘identification’ with others becomes “a deeper, more defined, more conscious and more self-controlled ability to understand others and to be ready to help them” (Dąbrowski et al., 1970, p. 71). Syntonic responses of a higher order emerge as identification with others becomes stronger and at this level begins to incorporate an awareness of other people’s experiences and emotions and moves away from the characteristics of temperamental syntony. It is also possible that during this time elements of reflective syntony appear. These do not normally emerge until Level III and are therefore short-lived if they appear at Level II, often reverting back to more primitive behaviors and ways of responding (Dąbrowski, 1996). Co-operation is an example of such a behavior. At Level II the existence of co-operation does not yet imply any level of self-sacrifice, but it does display an understanding of the needs of others despite there being no causal behavior or attitudinal change. A similar example is the sense of justice, which also begins to emerge at this level (Dąbrowski, 1996).

Level III or Spontaneous Multilevel Disintegration is a pivotal level within the Theory of Positive Disintegration. The internal processes occurring at this level signify the emergence of an individual hierarchy of values with which comes great potential for inner struggle and turmoil, particularly with the notion of ‘what ought to be’ compared with ‘what is’ in the search for the ideal self. If this tumultuous state does not eventuate from the transition phase between Level II and III, the individual is likely to revert back to a lower level of functioning with little or no personal conflict (Dąbrowski, 1996).

Level III is also extremely significant in the development of syntony. There are two gradients of syntonic response that are associated with Level III. During the earlier part of this level of development syntony begins to take on reflective characteristics, that is, moving away from the “subjugation of the intellect to basic drives, to its close link and balanced interaction with higher emotions” (Dąbrowski, 1996, p. 26). Lower-level syntony, with its

undifferentiated responses and feelings, disappears during the early part of Level III and is replaced by multilevel identification with others, with increased selectivity of responses and attitudes. With this multilevelness begins the development of the 'personality ideal'. This type of identification has its roots in "personal emotional experience and out of the development of a hierarchy of values in oneself" (Dąbrowski, 1996, p. 36). Identification is particularly evident with the emergence of the dynamism of positive maladjustment in Level III (Dąbrowski, 1996). This does not imply however, that the individual's thoughts, actions or reflections are modified as a result. In fact, this is the seed of empathy that has only just begun to germinate.

As the individual moves into the latter part of Level III cognition becomes more active and focussed, and personal reflection becomes an embedded characteristic. At this point a higher level of syntony develops and deepens. Dynamisms, including the third factor, engage (Dąbrowski, 1996; Dąbrowski et al., 1970; Harper et al., 2017), and the reshaping of needs occurs after which the newly emerging hierarchy of values becomes more prominent. This allows space for new perspectives and priorities, including the movement from a need for separateness and dominance, to the capacity to adapt within and for a group.

The definition of syntony in reference to the higher levels of personality development provides a stark contrast to its characterization of lower level responses. Whilst less frequent throughout Dąbrowski's writings, there is considerable evidence of the powerful construct that the term represents when referring to the higher levels of development, for example:

> The needs of societal life are transformed into a deep syntony with an ability to sacrifice oneself. It results in the development of the attitude of understanding and love (Dąbrowski, 2015, p. 117); and
>
> Syntony is a capacity for coexistence and reflects an easy and liberal dispensing of love (Dąbrowski, 2015, p. 122).

These passages refer to a higher state of personality development, particularly with reference to the notion of self-sacrifice. This provides a stark contrast between the levels: from selfishness as depicted in the lower forms of syntony, to a new prioritisation and sensitivity towards the needs of other people along with thoughtfulness and reflection. Here there is a higher-order balance within the individual, with life, with love, and with meaning. This is syntony at the highest level. The term 'syntony' was also used to refer to higher level functions in the Introduction within Mental growth through positive disintegration (Dąbrowski et al., 1970, pp. 1-16), thus further affirming the intent regarding the dual usage of the term across the platforms of Primary and Secondary Integration.

Empathy

Empathy is conceptually very different from syntony and emerges through a process that originates within different levels of personality development but yet remains within the syntonic continuum. Empathy is a response based on reflection, a sense of nurturing towards other people, and an understanding of others' circumstances (Dąbrowski, 1973). Empathy only emerges once the individual has achieved and experienced Level III, Spontaneous Multilevel Disintegration. The experience of multilevelness is essential for the development of empathy, as with multilevelness comes the capacity for understanding the difference between 'what is' and 'what ought to be'. Multilevel personality development will also pave the way for an individual to potentially experience 'subject-object in oneself', along with an authentic assessment and understanding of one's own relations with others and of the role and place of other people in one's own life and development (Dąbrowski, 1996). Dąbrowski (1996, p. 70) profoundly identifies the power, place and purpose of empathy:

Growth of empathy is one of the most powerful developmental dynamics and one which most clearly shows the progressive and hard won change from narrow egocentrism to an all-encompassing universal love. Empathy grows out of the strong emotions of search for

the meaning of life and finding it in concern and service to others, and out of the need for self-perfection as a human being. Self-perfection is not possible in a vacuum but grows out of a sense of relatedness with others measured in terms of an 'ideal other' embodied in one's personality ideal. It grows out of conflicts with oneself which produce an increase in caring and appreciation of others, and a deeper humility within oneself.

Levels of Empathy. Not all people have the capacity to move through the levels outlined within the Theory of Positive Disintegration and not all people exhibit the capacity to move through the levels to such an extent that empathy emerges.

An individual whose personality develops will display traits of positive disintegrative in some of life's more extreme circumstances, for example in times of great challenge, or great joy, but also when undertaking self-reflection. People who have this capacity may display "above average psychic sensitivity, and superior syntony…and a greater subtlety of feelings" (Dąbrowski, 2015, p. 85). Within Dąbrowski's Theory of Positive Disintegration the manifestations of behaviors and attitudes across the broader continuum of syntonic responses are inextricably tied to the level of development of the individual. Additionally, the activation of the Inner Psychic Milieu is also pivotal. The Inner Psychic Milieu is a "dynamic mental structure which appears significantly only at advanced stages of mental development, basically at the time of multilevel disintegration", which commences at level III, Spontaneous Multilevel Disintegration (Dąbrowski et al., 1970, p. 24; Harper et al., 2017).

The precursor to empathy is the level of syntony displayed at the earlier stages of Level III, the emergence of which is concurrent with an increase in personality development. This personality change is stimulated by the appearance of developmental dynamisms and the activation of both authentic reflection and a hierarchy of values (Harper et al., 2017).

At this level of psychological transformation overexcitabilities may also be evident. Indeed, emotional overexcitability contains the potential for being the catalyst for the

germination of empathy proper. In order for the development of personality to take place when moving from lower level responses to those around Level III, the previously strong biological influences will tend to decrease in importance and be replaced by conscious deliberate choices and decisions regarding values and behavior (Dąbrowski, 1996). As empathy is not possible in Level I, Primary Integration, or Level II, Unilevel Disintegration, the development from lower level syntonic responses to higher level empathic responding is an indication of an individual's level of personality development within the Theory of Positive Disintegration (Dąbrowski, 1996). Authentic emotional responses constitute a deeper, higher level feeling that include a level of identification with individuals regardless of their level of development. Such identification involves reflection on the self and on the other person (Dąbrowski, 1973). This identification does not imply judgement – either approval or disapproval - for actions or behaviors that sit outside the value system of the empathiser. Empathy involves "reflection, feeling of responsibility for other people, desire to assist them, friendliness and understanding" (Dąbrowski, 1973, p. 88).

A higher level of empathy is catalysed and revealed at Level IV, Organized Multilevel Disintegration. This level of empathic understanding is akin to what Martin Buber describes as "inclusion" (Buber, 1956; Dąbrowski et al., 1970, p. 2), where an individual can truly 'acknowledge' another. Empathy, and the self-awareness and self-reflection therein, are also crucial in the development of an individual's own hierarchy of values and personality ideal. At the highest parts of Level IV and in Level V, Secondary Integration, levels of empathy manifest not only through a sense of self-awareness and conscious desire for growth in the individual, but also the capacity of that individual to identify developmental potential in others. This is coupled with a desire to support others in their individual journey of growth, "to the highest level of the transcendental 'thou'" (Dąbrowski, 1973, p. 87). In Level V there is no personal conflict as the 'personality ideal' has been achieved, meaning that the

individual has authentically and autonomously achieved a life that matches their own fully developed ‘personality ideal’. This often is achieved through conflict and struggle against many societal norms.

The Syntonic Continuum

The discussion of syntony and empathy and the multilevelness therein is found throughout the majority of Dąbrowski’s writings. In order to increase the accessibility of Dąbrowski’s thinking in this area and to gain perspective of the relationship of syntony and empathy to the levels of development within the Theory of Positive Disintegration, the Syntonic Continuum (see Figure 5) has been developed. This is a new visual representation of both syntonic and empathic responses with examples of these traits mapped to the varying levels of development within Dąbrowski’s Theory of Positive Disintegration. The Syntonic Continuum was designed using references from Dąbrowski’s original writings to ensure an accurate interpretation of his original intent.

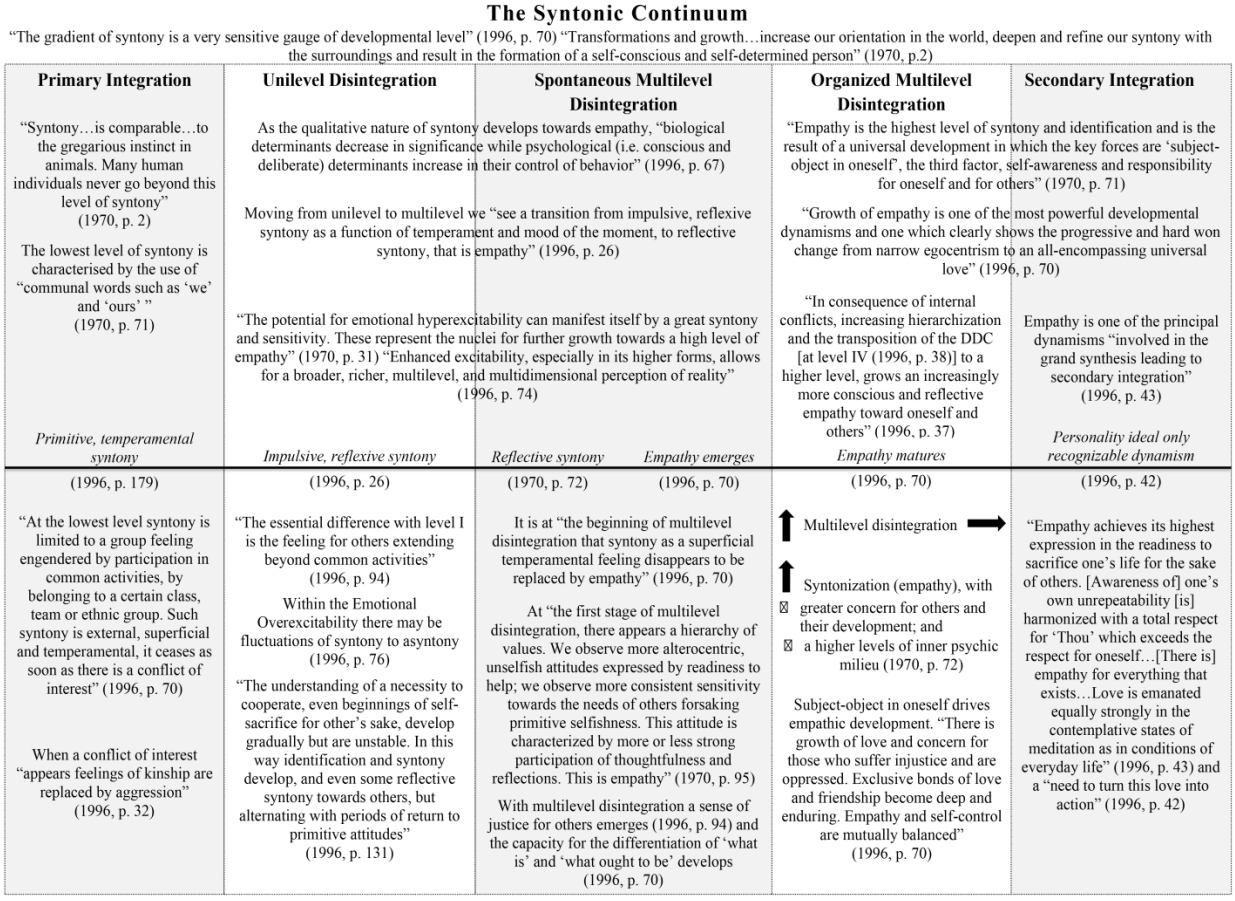

Figure 5. The Syntonic Continuum.

The Syntonic Continuum depicts each of the levels within Dąbrowski's Theory of Positive Disintegration with Level I on the left of the image, moving through to Level V on the right. A key feature of the Syntonic Continuum is the progression from primitive syntony to impulsive responses based upon a reflex action, through to considered, reflective responses and then those based in empathy. The development trajectory of these responses is mapped onto each level of the Theory via the center line. Significant characteristics of each level of development, relating to both syntony and empathy are included for clarity and verification with Dąbrowski's original writings. As with all study of Dąbrowski's Theory of Positive Disintegration, it is important to remember that the movement from one level to the next is not automatic, that not all aspects of personality may develop simultaneously and do not conform to developmental timeframes, and for those people who strive toward the personality

ideal, the disintegrative processes associated with this are likely to stimulate a “time of inner conflict, identity confusion, and even anxiety or despair” (Harper et al., 2017, p. 38).

In addition to increasing the accessibility of Dąbrowski’s conception of the movement of an individual from lower level syntony through to higher levels of empathic responding, the Syntonic Continuum will be a useful tool for practitioners within the behavioral sciences. It will aid in the exploration and understanding from an individual’s own perspective, of their personal developmental journey as they contemplate their personal thoughts and feelings through autopsychotherapy. Similarly an understanding of the Syntonic Continuum may support the work of educators who could gain deeper understanding of their students by including this tool in the suite of pedagogical information used in any learning environment. This may therefore also provide deeper insight that will aid in the design of student-centered curricula and in the provision of individually tailored learning plans. Dąbrowski’s Theory of Positive Disintegration is a complex, grand theory of personality development (Mendaglio, 2008a) and is at its most influential when all elements of the Theory are deliberated upon. By providing a graphical depiction of this important part of Dąbrowski’s Theory of Positive Disintegration, it is hoped that this will increase accessibility and engagement with Dąbrowski’s work.

Conclusion

Dąbrowski captures the essence of the emergence of empathy through the understanding and articulation of the development of responses and behaviors beginning with lower level syntony through to those at higher levels, and ultimately the achievement of true empathy. While the graphical depiction of the Syntonic Continuum aides in the understanding of Dąbrowski’s Theory of Positive Disintegration, it also contributes to the literature within a number of disciplines across the behavioral sciences, for example education, psychology, and also healthcare, where the development of empathy is examined. <End of article>

The Second Factor of Development. The Second Factor comprises the environmental influences on an individual's development and the "susceptibility [of an individual] to social opinion and the influence of others" (Dąbrowski, 1996, p. 33). When the Second Factor is strong, then behaviours, values and attitudes will be guided by the individual's need for recognition or acceptance by these external forces which could include, for example, parents and other extended family, the government, all types of media influence, and religious or sporting groups. The strength of an individual's Developmental Potential, through their genetic endowment, regulates and mediates the degree of influence held by these external factors. This suggests that if the genetic endowment is strong and there is consequently a strong Developmental Potential, then the negative effects of environmental and social influences are diminished.

The duality of the Third Factor of Development. The Third Factor has a duality of purpose and function which adds to the conceptual complexity of the Theory of Positive Disintegration. Not all individuals will progress through the levels of development and therefore not all people will develop the Third Factor or its manifestations. An understanding however of its dual function, at both a macro level as one of the Three Factors of Development; and at micro level as a developmental dynamism, will help to provide further understanding around Dąbrowski's theory and its subsequent incorporation into pedagogy across multiple disciplines.

Whilst the first two factors of development, heredity and environmental and social influences, are not conceptually new when considering the shaping of a human individual, the Third Factor is unique to Dąbrowski's Theory of Positive Disintegration. The Third Factor refers to a self-directed, autonomous force of development (Dąbrowski et al., 1970). The first conceptualization of the Third Factor is therefore in its role at a macro level. The existence and influence of the Third Factor is not evident until the individual has progressed into the

disintegrative stages of development. At a conceptual level the Third Factor has an equally strong influencing capacity as seen with the first two factors and once activated, there is also a perpetual interrelationship established within the individual, between all three factors. At a practical level the strength and influence of the first two factors diminishes in congruence with the individual's blossoming authenticity, self-awareness, hierarchical value system and ideals. At this point the individual begins to define themselves and actively work towards making changes in themselves that will bring them closer to their personality ideal (Dąbrowski, 1967). The Third Factor at the broader level is the sum or totality of the authentic self, which continues to influence and shape the self in an independent and managed yet cyclical fashion (Dąbrowski, 1964). The Third Factor is:

> the acceptance of those values which are closer to the ideal of personality and in the rejection of those values which are farther from this ideal…This viewpoint involves a look backwards, an awareness of what one was, and a look forward;…of what one is becoming. This developmental perspective is applied, not only toward oneself, but also toward other people and allows one to understand them and their own dynamics of developmental transformations (Dąbrowski, 1973, p. 77).

The Third Factor is simultaneously a crucial dynamism functioning at a very operational level in the developmental process. The embryo of this dynamism may appear in Level II but is predominantly apparent during Levels III and IV where multilevel disintegrative activity is occurring (Dąbrowski, 2015). The activation of the Third Factor is a period of "the awakening of the inner self" (Dąbrowski, 1972, p. 104). Embedded within the nuanced functioning of the Third Factor is the process of valuation and conscious choice. The individual knowingly places value upon varying qualities within themselves and their environment, and through this process either adopts or rejects each characteristic, trait or behavior. Each choice or action moves the individual closer to their personality ideal.

The changes in an individual that are stimulated by the emergence of the Third Factor appear slowly but reflect a fundamental shift in the central being of the person. Initially these changes may ebb and flow as the process of valuation and internal assessment evolves. This can involve the dissolving dynamisms (see Figure 4), for example ambivalence and ambitendency. The individual however, will emerge or possibly plateau, periodically whilst experiencing this slow, upward, developmental spiral of behaviors and values toward the personality ideal. To members of the surrounding social sphere, the individual may seem less sociable, negative or difficult, however this "alterocentric introversion" (Dąbrowski, 2015, p. 100) provides the opportunity for reflection upon the process, a great cognisance of the ensuing changes and personal analysis of the results from hierarchization of values.

An additional significant aspect of the Theory of Positive Disintegration is Dąbrowski's inclusion of the processes of self-education and autopsychotherapy in the dynamisms of the Third Factor (Daniels & Piechowski, 2009). These too are 'developmental dynamisms' (see Figure 4). The emergence of self-education also coincides with the beginning of the process of multilevel disintegration, the emergence of self-evaluation and the appearance of the Third Factor and its associated processes (Dąbrowski, 2015). Self-education is "the process of working out the personality in one's inner self" (Dąbrowski, 1972, p. 62) and is necessarily tied to several components: the dynamism 'feelings of inferiority towards oneself', the developing personality ideal, and a desire within the individual to move towards that ideal. Without the latter there is no stimulus for self-education which, in turn fosters the dynamism of 'subject-object in oneself'. During self-education, through a high level of self-awareness, the individual engages in a moral self-evaluation against the evolving ideal. The individual also adopts a new and evolving relationship with people and the environment stemming from both a subjective and objective analysis of their own place within it.

Autopsychotherapy is identical to the process of self-education however it is differentiated by the circumstances under which this occurs. In order to be classified as autopsychotherapy the individual must be experiencing periods of stress, whether the stress is based in a developmental crisis, a personal stressor or stress that is environmentally triggered. As with self-education, autopsychotherapy requires the expansion of the Inner Psychic Milieu (see Figure 4) and begins to emerge when the individual reaches the transition from Level III to Level IV (Dąbrowski, 1996).

Whilst personality development does occur during the process of positive disintegration, it is not the experience of disintegrative stress itself that is the catalyst for development; rather it is the engagement of the various dynamisms, in combination with the other factors of development that stimulates further personality development (Tillier, 2009). So, the Third Factor brings cognitive engagement with development towards the personality ideal: the individual embraces higher level elements in themselves and their environment and rejects those that are considered lower or inferior. With the activation of the Third Factor, the individual develops an awareness of separateness between the consciousness and the physical body, which then drives the development of values and the journey toward the fully developed personality.

With the engagement of the Third Factor biological urges are no longer the driving force of life. Rather, the individual's personality ideal, based in the hierarchically developed value system will provide the guiding principles for life. There is a direct relationship between these choices and the development of one's own emerging personality ideal (Dąbrowski, 1972) whereby behaviours are guided by the individual's conscience, values and self-talk (Mendaglio, 2008a). This is the Third Factor in action.

Processes of disintegration and integration

Dąbrowski (2015) acknowledges that the terms 'integration' and 'disintegration' are neither new nor unique to his theory and that 'disintegration' has been used to describe both the changes within the maturation process from child to adult, and also as he uses them to refer to the breaking-down of primitive structures that are based on instinct as we move toward a more fully realised authenticity. Dąbrowski (1967) also recognises that René Descartes (1596-1650), Ivan Pavlov (1849-1936) and Erich Jaensch (1883-1940), are among those who adopted both 'integration' and 'disintegration' in their work'. Jaensch also uses the terms in his typological classification of people.

Primary Integration and Secondary Integration are the first and fifth levels and are at opposite ends of Dąbrowski's developmental spectrum. They are similar however in that they are both states of integration and have little or no developmental movement occurring. In both these levels the state of integration provides a place of harmony, where there is no inner conflict, and therefore no stimulation for development. Individuals who experience life at Level I are driven by the first two Factors of Development – heredity, and environmental and social elements. If the individual experiences a fully cohesive integration at this level, there is minimal likelihood of personality development as there is a strong tendency towards automatic functioning, alignment with stereotypes (Dąbrowski, 1964) and instinctual, pleasure-dominant primitive behaviours (Kawczak, 1970) that correlate with the stages of the human life-cycle. Individuals living at Level V are also living without inner conflict; however these individuals are experiencing the realisation of the personality ideal and are influenced mainly by the Third Factor. Their experience of life is authentic, autonomous and largely altruistic (Mendaglio, 2008a).

Developmental Potential is the structure that governs the catalysts for development (see Figure 4); however the human sensation of development is experienced through the

disintegrative experience, which provides the movement between the levels of development. This movement will not occur, for example, when an individual is fully integrated at Level I.

Dąbrowski identified four types of disintegration: positive, negative, global, and partial (Dąbrowski, 1964). The process of positive disintegration is a fundamental process that facilitates the movement through the levels, from Primary Integration through to Secondary Integration. The process involves two repeated stages where the lower functions loosen and then collapse, after which higher functions emerge. Once commenced, the outcome of this process, which is not automatic, is not certain as not everyone on the positive disintegration journey will indeed arrive at the level of Secondary Integration. Dąbrowski (1964, p. 6) cautions that the results of this disintegrative process is "influenced by such factors as heredity, social environment, and the stresses of life", which are encapsulated in the First and Second Factors. The first part of this process, the disintegration, may provide the stage for intense negative emotions, the catalyst for which can be either a biological event, for example puberty, or a personal crisis (Mendaglio, 2008a). In the second part of the process, the developmental dynamisms facilitate the reforming, reshaping and reinventing of a new version of the self. These processes heighten the individual's sense of self and separateness from the world. It is a time of opportunity, set within great turmoil. If the individual begins to make conscious choices regarding the values by which to live, then they begin to become self-directed and the upward process of positive, or global, disintegration may commence (Mendaglio, 2008a). Requiring a favourable genetically inherited endowment, the end product, albeit hard won, is a positive move towards a higher self (Dąbrowski, 1996; Mendaglio, 2008a). The outcome of a disintegration can also be identified when "the presence of consciousness, self-consciousness, and self-control also reveals that the disintegration process is positive" Dąbrowski (1964, p. 19).

Whilst the actual processes of positive and negative disintegration are challenging to separately identify, the outcomes of each are the points of considerable differentiation. Negative disintegration has the opposite outcome from positive disintegration (Dąbrowski, 2015). Dąbrowski (1972, p. 299) defines negative disintegration as a "process characterized by the operation of dynamisms dissolving the organization of mental structures and functions. Its end is chronic mental illness. It occurs almost exclusively at the stage of unilevel disintegration."

In negative disintegration, the collapsing stage involves negative emotions and turmoil but without the positive resolution that comes with positive disintegration. In negative disintegration the individual would reintegrate at Level I. This state of turmoil that characterises disintegration is often referred to by psychologists as cognitive dissonance and people "will strive arduously to reduce the unpleasant psychological tension…between our beliefs and our behaviors" (Webb, 2013, p. 55). Although the process of negative disintegration does not lead to development, the individual has regained a sense of equilibrium within their life at the level of Primary Integration.

The second instance where disintegration is classified as negative occurs when the process of disintegration does not resolve in a way that provides the individual with either development or integration. In such an instance the disintegration "yields negative effects…[and] negative compensations for the life and development of an individual…[and may manifest, for example] in the direction of ill will or hatred for the social environment, and the feeling of inferiority is compensated for by way of aggression or by taking the wrong approach to life" (Dąbrowski, 2015, pp. 70-71). Potential outcomes of negative disintegration are chronic psychotic illness or suicide (Mendaglio, 2008a).

Global disintegration occurs when the individual experiences a major life crisis. Global disintegration "disturbs the entire psychic structure of an individual and changes the

personality" (Dąbrowski, 1964, p. 10) the outcome of which may be either permanent or temporary. A temporary global disintegration may therefore pave "the way for a new global integration at the level of personality (Dąbrowski et al., 1970, p. 166). Global disintegration is usually the dominant force in multilevel disintegration, and is therefore generally experienced by an individual who is operating at Level III or IV (Dąbrowski, 1967).

A partial disintegration impacts only part of the psychological and emotional functioning of an individual and will only occur in some developmental periods or under certain psychological situations (Dąbrowski, 1964). Partial disintegration also follows the same trajectory as negative disintegration, but without the cataclysmic outcomes and involves only part of the structure and psychological functioning of an individual (Dąbrowski, 1967). Effects of partial disintegration include stabilisation at a "lower level of functioning, a partial re-integration at a higher level, or a transformation into global disintegration" (Mendaglio, 2008a, p. 27). The partial disintegration could, however, also evolve into a full negative disintegration (Mendaglio, 2008a).

Heredity and the inherent genetic endowment are extremely important in successfully navigating a positive disintegrative process, however in a partial or negative disintegration the social environment will be a larger influence on the outworking of disintegration (Dąbrowski, 1966; Mendaglio, 2008a). The tensions and emotions experienced through the positive disintegration process may manifest in ways that have been typically identified as psychoneuroses (Dąbrowski, 1972). Whilst Dąbrowski did not discount the existence of mental illness, he did suggest that the automatic diagnosis of a classified illness, based on symptoms of the disintegration process, was potentially erroneous (Dąbrowski, 1972).

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Through the Dąbrowski lens: Philosophy, faith and the personality ideal

The purpose of this paper is to explore the phenomenological and existential influences on Kazimierz Dąbrowski (1902-1980). The philosophical perspectives of phenomenology and existentialism provide a platform for engaging with Dąbrowski's Theory of Positive Disintegration. Specifically addressed is the influence of Søren Kierkegaard on Dąbrowski. This paper will discuss these ideas by examining an unpublished manuscript of Dąbrowski's obtained from the National Archives of Canada. In this important but undated manuscript, *Confessions of Faith in Thoughts and Aphorisms*, Dąbrowski reflects on many topics including faith, Christianity and human purpose. Despite the manuscript being undated, there are indications within the text that place its composition to between 1972 and 1976. Dąbrowski identifies Existential Thoughts and Aphorisms as "one of our previous works" (Dąbrowski, n.d., p. 12). This work was published in 1972. Similarly, Dąbrowski's 1976 paper, On the Philosophy of Development through Positive Disintegration and Secondary Integration, expands ideas introduced in *Confessions of Faith in Thoughts and Aphorisms*, thus establishing the approximate upper-bound date of composition.

The Phenomenological Movement

The emergence of the phenomenological movement was heralded through a preparatory phase in the early 1800s; however, it was during the time of Edmund Husserl (1859-1938) that a second phase of phenomenological evolution became more clearly established (Merriam, 2009). For Husserl, phenomenology was "a study of the structure of consciousness, which proceeds by 'bracketing' the objects outside of consciousness itself" (Wrathall & Dreyfus, 2006, p. 2). Thus, actions are determined by knowledge of cultural heritage, which, by its nature is incomplete. There is a moral responsibility to acknowledge the incompleteness of knowledge and for the sake of intellectual integrity, all ideas and beliefs must be scrutinized before being accepted as true knowledge (Werkmeister, 1941).

Existentialism and phenomenology co-existed, even within the works of Husserl, whose "epistemological considerations…[grew] out of the factual and existential conditions of intellectual integrity and moral responsibility" (Werkmeister, 1941, p. 80). A central theme in phenomenology is that of consciousness, or intention, and the reflection of self within and outside this reality. This theme provides a clear connection from phenomenological thought to a significant element within Dąbrowski's Theory of Positive Disintegration, that being the dynamism of 'subject-object in oneself'. The notions of self-awareness and analysis are also foundational concepts within the Theory of Positive Disintegration and underpin Dąbrowski's concepts of multilevelness, hierarchization of self and the identification of the personality ideal (Dąbrowski, 1996).

Martin Heidegger (1889-1976), whose work featured prominently in the field of existential thought, was also significantly influential within the phenomenological movement, notwithstanding his desire to distance himself from the thinking of Husserl (Speziale & Carpenter, 2007; Wrathall & Dreyfus, 2006). Contrasting with Husserl's focus on the nature of consciousness, Heidegger's phenomenological standpoint centered on the human experience of 'being-in-the-world' and the relationships therein (Wrathall & Dreyfus, 2006). This perspective appears through the dual notion that between every 'mode of being' in the world there is a corresponding 'mode of experiencing' the world. When combined, these 'modes' equate to the totality of existence, and Heidegger's concept of beingness. It is the consideration and investigation of this concept which is, according to Heidegger, the purpose of philosophy. In this way the connection is drawn from phenomenology, to ontology and specifically existential philosophy (Werkmeister, 1941, p. 82).

The work of Husserl and Heidegger also contributed to the 'German phase' of phenomenological emergence by highlighting the development of central concepts: those of essences, intuiting, and phenomenological reduction. The concept of essence highlights the

close links between the work of Dąbrowski and the phenomenological thinkers. We will expand this link later when exploring his thinking in *Confessions of Faith in Thoughts and Aphorisms*.

The third phase in the evolution of phenomenological thought was led by French philosophers. This included Gabriel Marcel, Jean-Paul Sartre and Maurice Merleau-Ponty, and saw the emergence of the concept of embodiment and further development of the idea of 'being-in-the-world'. Building on their thinking, contemporary phenomenology is used to describe the phenomena of everyday life through the lived and conscious experience of those people living it (Barrasso, 2010; Gibson & Hanes, 2003; Punch, 2005; Speziale & Carpenter, 2007; Titchen & Hobson, 2011). It provides an understanding of how the world might appear to those living in it and the essence of the shared experiences of those people, which are considered the foundational units of common understanding (Speziale & Carpenter, 2007).

Contemporary Existential Thinking

Contemporary existential thinking has its roots in the work of Blaise Pascal (1623-1662), who saw the human experience as a paradox between mind and body. This notion was shared by Søren Kierkegaard (1813-1855). During the twentieth Century, existential thought was divided into two schools: that of a Christian nature where Kierkegaard was positioned, and that of an atheistic nature, encompassing the thinking of Friedrich Nietzsche (1844-1900), with both maintaining a focus on human freedom, responsibility and authenticity (Wrathall & Dreyfus, 2006). Importantly for this discussion, Pascal "had an overwhelming religious experience of Jesus the incarnate Christian God" who bore no resemblance to the Hebrew/Christian God as described by philosophers (Dreyfus, 2006, p. 139). From this revelation Pascal began a debate that still continues regarding the existence of, and/or relationships between, a human essence, the capacity for individual self-definition, and the

separation of body and soul. This line of thought also influenced Dąbrowski and can be seen throughout *Confessions of Faith in Thoughts and Aphorisms* (Dąbrowski, n.d.).

Links between Dąbrowski and Kierkegaard extend across existential and phenomenological inquiry. Jurgen Habermas (1991, as cited in Tilley, 2013) refers to Kierkegaard's 'Either/Or' where the individual takes on responsibility for his or her own existence. Michael Tilley (2013, p. 405) interprets this as meaning:

> The self is not created, but it is chosen among a host of other possibilities; the identity of an individual is developed by taking up a particular understanding of the history of the individual and directing one's life according to this historical portrait.

The alliance between existentialism and phenomenology was also demonstrated through the work of Heidegger and Sartre, both of whom continued the traditions of thought established by Kierkegaard and Nietzsche. The influence of Nietzsche's thinking can also been seen in the work of Dąbrowski.

Dąbrowski's contemporaries within the fields of psychology and psychiatry were also influenced by the work of Kierkegaard and Heidegger, notably Ludwig Binswanger, the named "founder of 'existential analysis'" (Frie, 2000, p. 108). After initially examining the work of Sigmund Freud, Binswanger turned to the work of Heidegger. Binswanger was the first to identify the importance of Heidegger's work to psychiatry. Binswanger's existential analysis is an approach to psychiatry where "person and world are one. It is thus a question of attempting to understand and explain the human being in the totality of his or her existence, which always includes his or her relationship to others" (Frie, 2000, p. 114). However, while acknowledging the importance of Heidegger's thought, Binswanger was not satisfied with Heidegger's treatment of the social aspect of being human and the inherent part that human interactions play in the achievement of authenticity. In Binswanger's continuing search for deeper meaning around the social dimension, he turned to the work of Buber and as such moved away from the influence of both Kierkegaard and Heidegger. While the works of

Buber and Binswanger did depart from Kierkegaard, Kierkegaard's social ontology and concept of community link his work to the domain of continental religious philosophy and phenomenological inquiry (Tilley, 2013). This conception also relates to Kierkegaard's notion of Existential Dread, where "people become conscious of their own responsibility for their intentions, choices and actions" (Owen, 1994, p. 347).

Dąbrowski portrays the norms of society as largely counter to the personal awareness and motivation that is required as an individual moves through the levels within the Theory of Positive Disintegration. Kierkegaard similarly held little regard for the broader norms of society, suggesting in Two Ages that society is "a demon that forms people in its image but is itself unable to be controlled" (Tilley, 2013, p. 406). Nietzsche also was critical of the influence of society on human development and believed that individuals could not develop their own values while adhering to "dogmas of the day…[which simply stimulate mediocrity, or a] "homogenization...[of] values and ideals" (Tillier, 2008b, pp. 109-110). For Nietzsche, one of the strong influences in society, albeit it one he considered less than desirable, was that of the Church. Blind compliance, through the command 'though shalt', along with potential guilt and fear with each deviation, is at the centre of Nietzsche's rejection of religion, thus ensuring the individual has the "right to pursue new values and a freedom for new creation...[through] a continual process of self-overcoming" (Tillier, 2008b, p. 113).

Furthering the notion of the individual taking responsibility for his/her own existence, Abraham Maslow, a humanistic psychologist, described existential psychology as "starting from experiential knowledge…Existentialism rests on phenomenology, i.e., it uses personal, subjective experience as the foundation upon which abstract knowledge is built" (Maslow, 1962, p. 9). Extending the thinking of the humanistic psychological movement is 'transpersonal psychology' which "began through the experiential study of meditation, altered

states of consciousness, and non-Western epistemology" (Gordon, 2012, p. 81). In this, Gordon also noted (p. 85):

Existential–humanistic or phenomenological knowing, based on the empathic understanding of one's private world of meaning and internal frame of reference associated with the growth-oriented dimension of personality, self-actualization, and the reality of higher states of consciousness, is missing from our models of human development.

However, the inherent spiritual awakening through higher states of consciousness to which she refers is evident in much of the thinking outlined within Dąbrowski's unpublished manuscript, *Confessions of Faith in Thoughts and Aphorisms*.

Dąbrowski's Concept of the 'Personality Ideal'

The 'personality ideal' is defined as:

> an individual standard against which one evaluates one's actual personality structure. It arises out of one's experience and development. Personality ideal is shaped autonomously and authentically, often in conflict and struggle with the prevalent ideals of society. It is a mental structure which is first intuitively conceived in its broad outline and serves as the empirical model for shaping one's own personality (Dąbrowski et al., 1970, p. 175).

As the individual gains insight and progresses towards the upper levels of the Theory of Positive Disintegration, thus towards the personality ideal, Dąbrowski describes an element of spiritual awakening, and exemplars of the highest level have been cited in the persons of Socrates, Abraham Lincoln and Mother Teresa (Tillier, 2008b). While Dąbrowski outlines complex processes that endow the individual with certain capacities for development, the journey of personality development is a personal one through self-awareness, metacognition and the spiritual realm. This is articulated throughout *Confessions of Faith in Thoughts and Aphorisms*.

For Dąbrowski, ‘personality ideal’ is achieved by reaching level V, or Secondary Integration, within the Theory of Positive Disintegration. Secondary integration is the “integration of all mental functions into a harmonious structure controlled by higher emotions…[It] is the outcome of the full process of positive disintegration” (Dąbrowski, 1972, p. 304). For those individuals with the potential for development, level V is achieved only after immense personal growth facilitated by movement through the levels of development via disintegrative and re-integrative processes, the catalysts for which are found within the three Factors of Development. Personal growth through positive disintegration places the locus of control within the realm of emotional function, rather than intellectual capability (Dąbrowski et al., 1970). A detailed description of the full Theory is beyond the scope of this paper and can be found elsewhere (Harper et al., 2017; Mendaglio, 2008c).

Critical to the development of the personality ideal, and the inherent emergence of an individual’s true identity, is the hierachization of values, the development of ‘subject-object in oneself’ and the capacity to develop oneself from ‘what is’ to ‘what ought to be’, which occurs through a process of inner psychic transformation. Fundamental to this process of development is the individual struggle, the unique human experience of growth and conscious differentiation, of “individualized love” (Dąbrowski, n.d., p. 4). Dąbrowski contends that it is through this transformation that full realization of the self occurs. He states that the human “personality is a global phenomenon, a synthesis of all the fundamental psychic qualities, a self-realized unity, self-chosen, self-affirmed and self-educating. In this way it set up the possibility of self-determination and self-creation” (Dąbrowski, p. 18).

Confessions of Faith in Thoughts and Aphorisms

In keeping with the aforementioned philosophical influences, *Confessions of Faith in Thoughts and Aphorisms* (Dąbrowski, n.d., p. 3) opens with a commentary on the nature of God's will for His people and questions the much-celebrated notion of 'fusion with God', asking:

> Is it the engulfing of us like crumbs without any meaning? Is it to be fusions through a complete shedding of our own individual personality, personal experiences, personal, individual memories, emotional ties, differentiations, and a 'calm and happy' entrance into intellectual, abstract existence, i.e. into a nothingness devoid of personality?

Dąbrowski, a man of Christian faith raised as a Polish Roman Catholic, argues that this is not the intention of God, that this engulfing of individuality is a creation of the institution of the 'Church' which then leads an individual to "re-enter a state of non-existence" (Dąbrowski, n.d., p. 4). Throughout *Confessions of Faith in Thoughts and Aphorisms*, Dąbrowski is incredulous that perhaps, having travelled the path of positive disintegration and establishing an individualized, differentiated and hard-won personality, the end result is a "non-individualized perfection" (p. 3) and a "devaluation of all aspects of an individualized way toward achieving one's personality" (p. 10), where "ideas…shine in their unchangeability, in their generality, in their perpetuality" (p. 36).

This also represents Dąbrowski's attitude toward the institutionalized indoctrination from the Church and its representation of God. Dąbrowski takes a different view. Having discussed other doctrines, for example Hinduism and Buddhism, he suggests that there is "only one hope – Christ" (Dąbrowski, n.d., p. 4), who led by example in the living of an individual experience and of unconditional love. Dąbrowski considered "that only the thought, example and way of Christ give a positive departure in religions and philosophical systems which occupy themselves with 'ultimate matters'" (p. 8). At the core of the meaning

of life, sits love, which through development, "slowly rises to the level of St Paul's 'Letters to the Corinthians' and loses its primitive, impulsive connotation" (p. 39).

While Dąbrowski published all Theory of Positive Disintegration material under his own name, his two works of a more philosophical nature, Existential Thoughts and Aphorisms (1972) and Fragments from the Diary of a Madman (1972) were both published under his pseudonym. Through this separation of content and use of pseudonyms, Kierkegaard's influence is further seen upon Dąbrowski. For Kierkegaard his religious, theologically based material was identified under his own name, however when contemplating aesthetic-philosophical matters, publication occurred under a pseudonym (Elrod, 1973; McKinnon, 1969). At this point it is reasonable consider that had *Confessions of Faith in Thoughts and Aphorisms* been published, it may have indeed been done so under Dąbrowski's pseudonym, Paweł, or Paul, Cienin.

In *Existential Thoughts and Aphorisms*, writing under his pseudonym, Dąbrowski admonishes people for entertaining monologues about God, "and not dialogues with Him. Indeed, there exists saints, but not many of them, who demonstrate comprehensible reasonable dialogue" (Paul Cienin, 1972, p. 25). In this, Dąbrowski is referring to those considered 'saintly' who profess to be 'all-knowing' in regards to God and His wishes for humanity; however, these people do not demonstrate this through their own actions and words. Dąbrowski is referring to an hypocrisy which demands conformity and loss of individualization. Through entries within *Confessions of Faith in Thoughts and Aphorisms*, Dąbrowski includes Saint John of the Cross and particularly the teachings of Saint Thomas Aquinas within this perspective, where "an intellectual, uncomplicated, undeviating, perpetual God is to engulf us, i.e., to destroy our 'small personalities'" (Dąbrowski, p. 14). The example of Christ provides a regular contrast to the behaviours of the Church and those

therein, whom are perceived to bask in the adulation of the masses and wallow in the trappings of pseudo-glorification and "pseudomystic majesty" (p. 96).

Dąbrowski is also wary of "those who are well situated…[noting that] one can have the badge of a Christian, a Catholic, a priest, a professor, a psychiatrist, a psychologist, a director, a member of this or that 'sublime association' and still be a blackguard" (Dąbrowski, n.d., p. 22). Thus life's purpose and virtue is not associated, in any way, with position or function. Dąbrowski appears quite passionate when he suggests that from within such groups of power comes many a human animal who "stalks its prey, 'scents' its victim which it eventually devours, has no shame, conscience, feeling of guilt, but it does all this…in an intelligent, logical, masked or underhand way" (n.d., pp. 22-23).

Dąbrowski is also adamant that a life "in which circumstances arrange themselves without particular hindrances, a life without suffering and inhibitions, without great joys and disappointments, without sensitive reactions to injustice–is a basically automatic life, coupled to the biological life cycle of the person" (Dąbrowski, n.d., p. 50) and as such will not develop towards the personality ideal. Without the tragic, the challenging, conflicting and the confronting, an individual cannot, will not, experience the inner psychic transformation necessary for multilevel development, or the emergence of a full empathic condition and cannot move towards the personality ideal. Similarly, without these challenges and anxieties, we are not equipped to understand, or experience in its fullness, the tapestry, elation and fulfilment of the process of development. Contentiously, Dąbrowski considers that for the significant majority of people, the concepts captured within the existential or essential questions, along with the nature of multilevelness and multidimensionality will be largely incomprehensible (Dąbrowski, n.d., p. 91).

While this view casts a shroud over the potential of humanity, Dąbrowski is not without hope and recognises the potential for the positive, uplifting and virtuous within individuals.

There is, at the core of every human, the potential for development, which for some can manifest in a dynamic, lifetime's passage, through inner psychic transformation, towards the personality ideal. "Only then does essence emerge from a chaotic or primitive existence, as the relevant form of human existence and as a the principal condition of a meaning for its existence" (Dąbrowski, n.d., p. 26). An auto-deterministic approach is at the core of this thinking, when free will links to our true essence and to the emerging personality, rather than that which is imposed.

In subsequent writing, Dąbrowski expands the understanding of the human essence, which is divided into two qualities: the individual and the social. Individual qualities consists of three elements: first, those aptitudes and talents that form the core meaning or purpose in a person's life without which existence would have no meaning; second, emotional bonds through love and friendship; and third, "the self-conscious identification with oneself, with one's development and with one's perspective for the future" (Dąbrowski, 1976, p. 132). Dąbrowski (p. 132) identifies the essential social qualities as "empathy, social consciousness, authenticity and responsibility" that provide the foundation for all our human interactions and suggests that these are inextricably interconnected with each other. Again Christ provides the exemplar through "consciousness of His own unrepeatable individual identity, and…His constant readiness to serve all the people" (Dąbrowski, 1976, p. 133).

Dąbrowski (n.d., p. 75) places empathy "at the peak of the developmental hierarchy" and suggests that it is synonymous with love. True personality, through authentic development, moves through the "strong universal dynamisms of the sexual instinct [to a true and deep understanding of love, which emerges from] a profound attitude of the emotion of loyalty and a great spiritual need for permanence" (p. 131). Dąbrowski suggests that at level V the deepest of friendship replaces sexual love and it is this level of love that provides the foundation for a spiritual union. Dąbrowski credits this thinking to Kierkegaard (Dąbrowski,

1996, p. 51). Construction and creation of personality occurs in both the mundaneness of everyday life, and in times of reflection where the process of auto-education is incorporated. This process is documented throughout the Theory of Positive Disintegration (Dąbrowski, 1964).

Dąbrowski (n.d., p. 15) also reflects more closely on an intrinsic existentialist question, that being "what is more fundamental; essence or existence." Dąbrowski's interpretation of the definition postulated through his own experience of the institution of the Church is that 'essence' is "an idea, it is that which is universal, unchanging, integrated, intellectual as opposed to that which is differentiated, emotional, single, individual" (p. 15). This definition, which he considers to be based upon a lack of individual differentiation and the subjugation of emotion – even extracting emotion out of God's love, is quite contrary to Dąbrowski's own perspective. He counters that "the higher we are in development [towards the personality ideal], the more we gain in existence and lose in essence. God is pure existence. Existence is prior to essence and essence cannot be differentiated but in existence" (Dąbrowski, n.d., p. 16). That which is fundamental to human existence and development has its genesis in the recognition of the core qualities of an individual, including emotional bonds of friendship and love; our given gifts and talents; consciousness and sense of identity. The qualitative aspects of these elements remain stable, but do change in a quantitative correlation with development and are essential for an individual to perceive "the meaning of life" (p. 17). Dąbrowski (1976, p. 134) states:

> From my point of view, the essence of man is the unity of the conscious, the chosen, the affirmed and the developing major characteristics of individual personalities. In this approach essence is much more important than existence, which…presents something extrinsic to individuality.

Dąbrowski's is a position of "indeterminism, autonomy and authenticity" (p. 18) and it is by this approach to life that an individual, according to Dąbrowski, comes to a relationship with God. "God…is a God of love and human freedom…[who] loves man and longs for his love, but love out of free will, through the understanding and acceptance of ideals and not just their imposition" (p. 19). In this way "by ourselves – with God's volition and grace as a basis – we acquire our highest possible level…We choose the genuine I; we self-assert and self-educate ourselves" (p. 56) and move away from "a norm of healthy mediocrity" (p. 85) that facilitates the "squandering away of developmental dynamisms…[and]…mutilates the human psyche" (p. 87). Dąbrowski's passion for both the value of the autonomous, free-thinking individual and the importance of faith within the journey towards the personality ideal, are clearly articulated through these passages. While Dąbrowski suggests that only God can truly know the human entity, partial knowledge of self and the underpinning personality can be achieved "by a person who is modest, subtle and comprehensively developing" (p. 95).

Dąbrowski further aligns himself with existentialist thought through recurring references to the characteristics and contributions of the existentialists (Paul Cienin, 1972). Specifically, Dąbrowski identifies the writings of Søren Kierkegaard as influential. There are consistent references throughout Dąbrowski's published and unpublished works, not just within *Confessions of Faith in Thoughts and Aphorisms*, where the influence of Kierkegaard is evident or explicitly mentioned, particularly Kierkegaard's ideas of 'fear and trembling' (de Silentio, 2012) and 'either/or' (Kierkegaard, 2004) where Dąbrowski links Kierkegaard's concepts to expressions of the human condition.

Similarly, philosopher Andrzej Kawczak, in the first chapter of Mental Growth Through Positive Disintegration (Dąbrowski et al., 1970) identifies a relationship between the work of Dąbrowski and "existentialist ethics and existentialist philosophy in general…[and specifically identifies that] Kierkegaard's "Fear and Trembling", "Either/Or" and many other

works are masterly descriptions of some states of multilevel disintegration" (Dąbrowski et al., 1970, p. 9).

Dąbrowski uses the term 'either/or' to depict the inner struggle or conflict within the consciousness of an individual, as choices and decisions are made regarding actions, values, desires, "the struggle between good and evil, with the tragedy-swollen feeling of the necessity of selecting and deciding" (Dąbrowski, 2015, p. 31).

The other significant and often-referenced idea from the work of Kierkegaard is that of 'fear and trembling'. Dąbrowski, for example, suggests that the human experience of guilt is akin to 'fear and trembling' especially when the guilt response relates to one's own awareness of not functioning at the highest level of development. At this point there remains a pull towards the lower level while developing a consciousness around the upper levels and the personality ideal. This occurs through self-education, or the "process of working out the personality in one's inner self" (Dąbrowski, 1964, p. 62) where the hierarchization of values becomes clearer; however, the inner conflict between the pull towards lower levels and the yearning for self-perfection culminates in this state of flux where Dąbrowski draws the comparison with 'fear and trembling'. There is a sense of anxiety that accompanies this state; however, it is the 'fear and trembling' within this level of anxiety that provides the potential stimulus for transformation and development, specifically it is "characteristic of the first stage of multilevel development (i.e. spontaneous multilevel disintegration, or level III)" (Dąbrowski, 1972, p. 200). Dąbrowski also credits Kierkegaard with a number of noteworthy contributions, including articulating "the esthetical, ethical and religious phases" within the human development process (Paweł Cienin, 1972, p. 66), of having, along with Saint-Exupéry, an obsession with "absolute love" (Dąbrowski, 1972, p. 140), and of providing a perception of humanity that "involves hierarchization of values and a developmental transition to higher stages of life" (Dąbrowski, 1973, p. 76).

So for Dąbrowski, the ‘true’ essence of humanity, of faith, spirituality, of Christ, is tied inextricably to the questions and views identified within both phenomenology and existentialism. The existential thinkers Kierkegaard and Nietzsche had a significant influence on Dąbrowski as is apparent in his frequent references to their work. This is also true within *Confessions of Faith in Thoughts and Aphorisms*, in which there are multiple direct references to Kierkegaard and his writings. Dąbrowski’s unpublished manuscript also illuminates the importance of faith, spirituality and the place of God in his thinking on humanity, individual development and the personality ideal and ultimately, the totality of human purpose. It is these lofty issues and their practical outworking within the development of human personality that are addressed by Dąbrowski in his Theory of Positive Disintegration.

<End of article>

Research Rationale

The Research Problem

This research brings together a number of separate discipline areas: gifted education, clinical skills acquisition in healthcare, personality development through Dąbrowski's Theory of Positive Disintegration, academic self-concept particularly the Big Fish Little Pond Effect, and the development of empathy.

Greater understanding of these areas of gifted education pedagogy and their potential relationships with both empathic responding and the development of the clinical skills of healthcare professionals may better equip educators to consider and communicate ideas and beliefs around empathic responding, to design curricula to nurture the development of these areas with an increased understanding of the full breadth of students' potential idiosyncrasies; and to do this with the student at the centre of the educational pedagogy as mandated by the University of Tasmania (The University of Tasmania, 2012, 2016d, 2016e).

Each of these research fields have been extensively explored through the literature, however they have rarely, if ever, been combined in an attempt to inform the learning and teaching of clinical skills in undergraduate healthcare.

The clinical skills demonstrated by healthcare professionals are the interface between extensive knowledge and understanding of the intricate biological functioning of the human body, and the human being. On many occasions the interactions where clinical skills are called upon occur when the individual and their loved ones are at their most vulnerable and fragile. It is imperative from both a compassionate and clinical outcome perspective that healthcare professionals are equipped with highly developed and effective clinical skills.

The healthcare professions, through university entrance requirements, recruit students who have achieved extremely high academic levels in their prior study, whether that is through previous tertiary study or their ATAR level if they are school-leavers. A high

proportion of these students irrespective of their backgrounds, fall within Gagné's (Gagné, 1991, 2008, 2009, 2010) classification of 'gifted' that has been widely accepted across educational jurisdictions in Australia.

Gifted education is an extensively studied and researched area of educational professional learning incorporating primary, secondary and tertiary sectors, and other forms of adult learning (Fraser-Seeto, Howard, & Woodcock, 2016; Mendaglio, 2013; Merrotsy, Cornish, Smith, & Smith, 2008; Webb, 2013). While Dąbrowski's Theory of Positive Disintegration does appear regularly within the gifted education literature (Bailey, 2010, 2011; Jackson, Moyle, & Piechowski, 2009), one area of the Theory of Positive Disintegration, the overexcitabilities, has been particularly embraced and documented by the international gifted education community (Mofield & Peters, 2015; L. K. Silverman, 2008; Thomson & Jaque, 2016; Wirthwein & Rost, 2011). The literature regarding the overexcitabilities also addresses the potential affective sensitivity of gifted individuals (Mendaglio, 1995, 2002; Piechowski, 2010).

The Big Fish Little Pond Effect (Marsh, 1987, 1990b, 2005), with particular reference to academic self-concept, also has implications for gifted learners of any age as they move from a heterogeneous learning environment to one that is homogeneous in nature. The academically gifted students who are recruited into undergraduate Medicine, Paramedicine and Pharmacy courses may also experience this transitional adjustment and potentially be impacted by the Big Fish Little Pond Effect.

The Research Questions

Based on the exploration of gifted education pedagogy, clinical skills acquisition in healthcare disciplines, personality development through Dąbrowski's Theory of Positive Disintegration, academic self-concept including the Big Fish Little Pond Effect, and the development of empathy, the following research questions emerged:

1. To what extent:
    a) do student demographics, specifically Age Group, Course, Gender and Prior Tertiary Study; predict levels of empathic responding and academic self-concept?
    b) does empathic responding and academic self-concept predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?; and
    c) do student demographics, specifically Age Group, Course, Gender and Prior Tertiary Study; predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?
2. To what extent is there evidence of the Big Fish Little Pond Effect across first year healthcare undergraduate students at the University of Tasmania?
3. To what extent does Dąbrowski's Theory of Positive Disintegration inform the results of this study?

Chapter 3: Methodology and Research Methods

Philosophical framework

This section locates the study in an Interpretivist paradigm and outlines its phenomenological perspective. The specific methodology that provides the stimulus for the methods will also be outlined.

The Interpretivist paradigm. This research is seated within the Interpretivist paradigm. Broadly, a paradigm is a world view adopted by a researcher that influences their perspective (Aubrey, David, Godfrey, & Thompson, 2000; Guba & Lincoln, 1994). It is the specific lens through which an individual sees the world and the resulting curiosity that is stimulated (Denzin & Lincoln, 2005; O'Donoghue, 2007). The paradigm also provides the foundation for the development of the research methodology (Sommer Harrits, 2011) by defining the boundaries of the inquiry through the inherent ontological, epistemological and methodological questions and assumptions (Punch, 2005, 2009). The research parameters established in the adopted paradigm influence the position through which the research in conducted (Ezzy, 2006; Gephart, 1999; Wolgemuth, 2016).

The Interpretivist paradigm attempts to understand the views, opinions and experiences of the world from the perspective of the people involved (Elshafie, 2013; Mackenzie & Knipe, 2006). This is a socially constructed view of the world, accepting that reality is a complex phenomenon where meaning and understanding of the world is derived from the interactions of the subject and the object, the situations and the behaviours (O'Donoghue, 2007; Punch, 2009) and is revealed through the work of the researchers as they interact with the research participants (Andrade, 2009).

Phenomenology. From its place within the Interpretivist paradigm, this study adopts a phenomenological approach. Phenomenology has a dual purpose: it is both a method that guides the research process and a philosophical perspective (Zahavi, 2016). The history of

phenomenology as a philosophical movement was presented in Chapter 2 within the embedded 'in press' article: *Through the Dąbrowski lens: Philosophy, faith and the personality ideal.* As a research methodology, phenomenology focusses on the lived and conscious experiences of everyday life through the essence of the shared experiences of those living it (Barrasso, 2010; Speziale & Carpenter, 2007; Titchen & Hobson, 2011). Essences are the core units of common understanding (Speziale & Carpenter, 2007) and it can be argued they are also foundational to the experience of empathy (Zahavi & Rochat, 2015). The experience of life, based in phenomenological knowing provides a valuable insight into:

> empathic understanding of one's private world of meaning and internal frame of reference associated with the growth-oriented dimension of personality, self-actualization, and the reality of higher states of consciousness (Gordon, 2012, p. 85).

The value and use of ontological and epistemological modes of inquiry in this thesis are driven by their deep alignment with the essence of empathy, the vital central construct of this research.

As the philosophical roots of phenomenology are also foundational for existential thought the association between phenomenology and existentialism further provides a foundation for the inquiry in this thesis. That the work of Dąbrowski was strongly influenced by existential philosophy and Dąbrowski's Theory of Positive Disintegration is deployed as an overarching lens through which these study results are considered, further supports the methodological use of phenomenological enquiry.

The current mixed-methods exploratory study adopted a phenomenological approach that aimed to provide "an in-depth understanding of the nature and meaning of everyday experience" (Gibson & Hanes, 2003). As an interpretive research methodology, in this study it forms the paradigm by which to further understand the meanings and considerations that first-year undergraduate Medicine, Paramedicine and Pharmacy students at the University of

Tasmania bring to situations where their empathic responses may be stimulated. Similarly, by utilising a mixed-methods design (Tashakkori & Teddlie, 1998, 2003; Teddlie & Tashakkori, 2006; Venkatesh, Brown, & Sullivan, 2016) this study provided the opportunity to consider the responses, observations, feelings, and experiences of the participants regarding their own empathic responses and the meaning they derive from them (Gephart, 1999; Punch, 2009; Voce, 2004).

Research Methods

Phases of Study Design. Originally this study 'Paving the Practical Pathway: The place of gifted education pedagogy in undergraduate clinical skills acquisition' was designed using an intervention approach. Participants were first-year Medicine students at three universities in Australia. The study was introduced to students via a 3 ½ minute digital pre-recorded presentation which can currently be accessed here https://dl.dropboxusercontent.com/u/1495951/Paving%20the%20Practical%20Pathway.mp4.

The format of the study was in three phases: online data collection at the outset, the delivery of an educational intervention based on gifted education pedagogy, and then follow-up data collection. There were two optional levels of participation: the first being participation in only the data collection phases and the second involved both the two data collection phases and an additional intervention activity.

The University of New England (UNE) and the University of Newcastle (UoN) became data collection sites through their Joint Medical Programme. Ethics approval was received from each participating university and the data collection phase of the study commenced in semester 1, 2015. Unfortunately by the end of that semester it became clear that the participation rates for the study were not high enough to facilitate appropriate statistical analyses (see Table 7).

Table 7

Study Design 1: Participation Rates (N = 28)

University	Total number of participants	Participants in the intervention
University of New England	7	1
University of Newcastle	9	5
University of Tasmania	12	3

Both UNE and UoN were notified in late June 2015 that the project would be abandoned. Final Ethics reports were submitted to each university in July 2015 and accepted by each Human Research Ethics Committee (HREC) by July 16th, 2015.

The study was redesigned, maintaining the inclusion of first-year Medicine students but expanded the target cohort with the addition of Paramedicine and Pharmacy students. The University of Tasmania became the sole data collection site. In undertaking the redesign, the intervention element of the original study was discarded and a regular mixed-methods approach was adopted. Also the pre-recorded digital introduction from the first iteration of the study was discarded. The redesign, including all negotiations and Ethics amendments and approvals, was completed during the latter part of 2015, enabling phase 2 data collection to commence in semester 1, 2016 and be concluded within one academic year.

Participants

The current mixed-methods exploratory study received ethics clearance from the University of Tasmania's Human Research Ethics Committee (approval number H14476, see Appendix 2) and used a random sample of first-year Medicine, Paramedicine and Pharmacy students from the University of Tasmania. Data was collected from the Medicine students in the 2015 year-group and the 2016 cohort across the disciplines of Medicine, Paramedicine, and Pharmacy.

Recruitment and consent. All first-year students enrolled in the identified courses were invited to participate in the study via a 10-minute face-to-face presentation at either the beginning or end of a previously identified lecture. Additionally, study information including the invitation to participate was sent by each Division to their respective students' university email accounts. Within the email was a link to the online survey material, which included a digital version of the Information Sheet and Consent Form (see Appendix 3 and 4). Involvement in the study required students to complete the online quantitative data collection towards the beginning of semester 1, and participate in a semi-structured one-on-one interview in the latter part of the year. Participants who completed the two parts of the study were included in a 'raffle' for a $50 iTunes voucher. There was one voucher per participating school, per year. The final numbers of participants from each discipline are documented in Table 8.

Table 8

Study Design 2: Participation Rates (N = 53)

Discipline	Quantitative	Qualitative
Medicine	29	17
Paramedicine	15	8
Pharmacy	9	3

Quantitative Methods

The quantitative methods consisted of an online survey interface that was constructed using the University of Tasmania supported online survey tool, LimeSurvey (LimeSurvey Project Team, 2015). Participants received the url to the study information and consent pages. If students consented to participate in the study, the survey continued by displaying three instruments: the Interpersonal Reactivity Index, the Self-Description Questionnaire III and the Student Data Survey. Participants were able to complete the survey material in their own time. The capacity to save incomplete surveys was incorporated into the LimeSurvey model, allowing participants to return to the portal at a later time.

Interpersonal Reactivity Index. The Interpersonal Reactivity Index (IRI) is a self-report Likert-type instrument that measures four subscales of Fantasy, Perspective Taking, Empathic Concern and Personal Distress (M. H. Davis, 1980, 1983). The developmental history of the IRI is addressed in Chapter 1. In summary there were two questionnaires administered prior to the selection of items to be included in the final instrument. Factor analyses were conducted on the data from these two previous instruments to confirm the factors of empathy. The results of this process supported the multidimensionality of empathy and validated the four constructs which then became the subscales of the final IRI (M. H. Davis, 1980), producing seven "unit-weighted subscales corresponding to the four factors identified earlier" (M. H. Davis, 1980, p. 10).

The Fantasy subscale appears to engage with an individual's ability to project themselves into imaginary or fictional situations. The Perspective Taking subscale reflects capacity to shift perspectives and move out of one's own experiences to view those of others. These are not measures of fictional or hypothetical situations, but gauge responses against real situations of perspective taking (M. H. Davis, 1980). The Empathic Concern subscale contains items:

> assessing the degree to which the respondent experiences feelings of warmth, compassion and concern for the observed individual…[In contrast the Personal Distress subscale] measures the individual's own feelings of fear, apprehension and discomfort at witnessing the negative experiences of others (M. H. Davis, 1980, p. 12).

Once the final instrument was constructed the questionnaire was administered to a final, independent group of participants. This provided a further check of the factor structure and demonstrated that each subscale achieved satisfactory levels of internal reliability for both males and females. Of the eight alpha levels recorded four gained Cronbach's $\alpha = .78$. The lowest level of Cronbach's $\alpha = .70$ was scored by females on the Empathic Concern subscale. A subsequent factor analysis conducted by Hay et al. (2007) also confirmed the factor structure of the IRI. The final instrument also underwent test-retest reliability testing. The retest was undertaken between 60-75 days from the initial administration and achieved reliabilities ranging between .61 on the Perspective Taking subscale for makes to .81 on the Fantasy subscale for females (M. H. Davis, 1980).

The IRI was reformatted for use in this study to facilitate online administration through the University of Tasmania online survey portal. The scoring/coding data was removed. The original and a print version of the reformatted version are included in Appendix 5. Each IRI response was scored according to Davis' guidelines (M. H. Davis, 1980, 1983).

Self-Description Questionnaire III. The Self-Description Questionnaire III (SDQIII) is the most recent instrument in a series that aims to measure elements of self-concept all of which are based upon the Shavelson model of self-concept (Marsh, 1989) as described in Chapter 2. The SDQIII was administered to all participants via the online portal. Data was exported using MS Excel, de-identified and coded according to the SDQIII manual (Marsh, 1989) and then transferred to the statistical software for analysis.

Student Data Survey. The Student Data Survey (SDS) gathered general demographic details from all participants in addition to information regarding for example: study habits, employment arrangements, use of information technology during lectures/classes, and perceived academic standing. The SDS was administered through the online portal along with the IRI and the SDQIII. A print-based copy of the SDS is in Appendix 6. Not all data collected in the SDS remained relevant for the final analyses however information pertaining to age (over or under 21), course grouping, gender, and completion of prior tertiary study were retained. Within the group, age, the data was divided at age 21 to compare students who may have come directly from, or soon after year 12, in comparison with students who may have more life experience. Within the group, gender, the data collection also included the subgroup 'other', however there were no participants who chose to identify with this group, so it was removed from the analyses.

Once the data collected from all participants across the three quantitative measures was extracted from LimeSurvey it was de-identified and inputted into the analytic software using a participant identification code. Data from the IRI, the SDQIII, and the Student Data Survey were analysed using IBM SPSS (v. 20) (IBM Corp, Released 2011).

Academic Results. The participating students provided consent to the collection of relevant academic results. This was undertaken across the three course groups in order to gather assessment data specifically focussing on clinical skills.

In the MBBS clinical skills are specifically addressed within the Domain 2 curriculum which is taught throughout CAM101-Foundations of Medicine 1 and CAM102-Foundations of Medicine 2 which are the two units of study undertaken during the first year of the course. Each unit is weighted at 50 credit points which equates to a full time study load. As a result of this structure the Domain 2 assessment is embedded within the larger assessment structures of the unit. For the purposes of this study, these assessment tasks and the

associated marks will be extracted from the larger unit, to more closely reflect the weighting for clinical skills that is undertaken by students in Paramedicine and Pharmacy, thus allowing for more meaningful analysis between course groupings.

Students in the Paramedicine discipline undertake one unit in each of the first two semesters of their course where clinical skills are a focus. These are CAA107-Principles of Paramedic Practice 1 and CAA108-Principles of Paramedic Practice 2. Each unit is weighted at 12.5 credit points. Reference to the unit descriptions (http://www.utas.edu.au/courses/hsi/courses/53a-bachelor-of-paramedic-practice) clarifies that clinical skills assessment for these units are significant and embedded within the assessment structure. There is no need for the extraction of clinical skills assessment for these units.

Clinical skills are also taught within the first two semesters of the Bachelor of Pharmacy. In a similar vein to the Bachelor of Paramedic Practice, the clinical skills curriculum and assessment tasks are embedded within smaller units, specifically CSA103-Pharmacy Skills in Practice 1 and CSA157-Pharmaceutical Science and Practice 1. These are both 25 credit point units and as such equate to half of the full time study load in each semester. Again reference to the unit descriptions (http://www.utas.edu.au/courses/hsi/courses/m3f-bachelor-of-pharmacy) clarifies that clinical skills assessment for these units are significant and embedded within the assessment structure. There is no need for the extraction of clinical skills assessment for these units.

Qualitative Methods

The qualitative section of this study used a semi-structured interview technique with a prepared DVD clip (Monash University, 2013) and a prepared script (see Appendix 7). The interview aimed to explore in greater depth into the students' developing sense of empathy, and the types of responses that the DVD and scripted questions might elicit. In order to

facilitate later analysis, the script was devised to align with the four subscales from the IRI and the Academic Self-Concept subscale from the SDQIII.

From the participating cohort (N = 53) twenty-eight students (n = 28) from across the three discipline areas consented to participate in the interviews. The interview sample included both male (n = 6) and female (n = 22) students. Each interview was recorded with the student's consent and subsequently transcribed by the researcher (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008; Ziebland & McPherson, 2006) using Dragon voice recognition software (Nuance, 2012). A sample of an interview transcript from each discipline is included in Appendix 8. The transcripts underwent thematic and concept analysis using Leximancer v4.

Leximancer. Leximancer is computer-aided qualitative data analysis software (CAQDAS) that facilitates text-mining processes to:

> analyse the content of collections of textual documents and to visually display the extracted information in a browser. The information is displayed by means of a conceptual map that provides an overview of the material, representing the main concepts contained within the text and how they are related (A. E. Smith, 2010, p. 1).

Philosophically, the basis for the development of Leximancer sits within an framework of ontological relativity and dynamics (A. E. Smith, 2010). Ontological relativity, a concept introduced by Quine (1968), suggests that:

> the background knowledge, the current context, and the goals of the person…[and ontological dynamics suggests] that a useful mental model of meaning may change over time, because either the external environment is changing in fundamental ways, or the knowledge, context or goal of the person is changing" (A. E. Smith, 2010, p. 1).

Leximancer combines these approaches to language and ideas and provides the technological requirements to analyse language and meaning within its reality. Historically qualitative analysis has been a manual process involving the sorting and comparison of

linguistic data (Braun & Clarke, 2006). From a technical perspective Leximancer works in two phases: semantic extraction and relational extraction (Berlanga et al., 2009; Stockwell, Colomb, Smith, & Wiles, 2009). There are a number of advantages to the automation of this process, including the elimination of researcher bias, and increased reliability (Cretchley, Gallois, Chenery, & Smith, 2010; Harwood, Gapp, & Stewart, 2015; A. E. Smith & Humphreys, 2006).

Initially the data was prepared for analysis. The transcribed interviews were edited to remove the interviewer contribution and de-identified, leaving only the participant's dialogue. The text for each participant was saved as a separate file and then copies of that file were grouped by Age Group, Course, Gender, and Prior Tertiary Study to facilitate thematic analysis between groups.

In the design phase of the interview script specific questions were constructed to elicit responses that aligned to the factors measured by each subscale of the IRI. The corresponding responses were extracted from each interview transcript and again sorted by Age Group, Course, Gender, and Prior Tertiary Study. The same process was also undertaken for the interview response that related to Academic Self-Concept. Additionally, the final question from the interview script was subsequently identified as corresponding to the Big Fish Little Pond Effect, and therefore the responses to that question were also extracted and sorted to facilitate thematic analysis.

Once the text had been prepared for analysis the relevant documents were uploaded into Leximancer. The Leximancer CAQDAS version 4 provides a visual map of both concepts and themes that are drawn from the text-based data. The second stage of the qualitative analysis Leximancer processing began with instructing the software to remove 'stop words' from the analysis. The default list of stop-words, for example 'a', 'about', 'did', 'does', was adopted and the automatically generated concept list was manually adjusted to merge similar

concepts, for example ‘thinking’ and ‘thought’. Given the small sample size for this study each analysis was manually capped to generate a quality list of a maximum of 20 concepts. This list was checked to ensure that potentially relevant words were not excluded. The list of manually excluded words was: doing, down, guess, obviously, need, probably, seemed, stuff, sure, things, wrist, and year. The lists of excluded words relating to each specific analysis are reported in the qualitative section of Chapter 4.

The results of the quantitative and qualitative investigations were analysed separately, together, and then interpreted against Dąbrowski’s Theory of Positive Disintegration, specifically in the context of empathic development. The results of the analyses are reported in Chapter 4 and the findings are discussed in Chapter 5.

Ethical Considerations

Initial support for the project was gained through consultation with Division of Medicine staff and the relevant committees. This occurred in the first iteration of the study. Ethics clearance from the Human Research Ethic Committee (HREC) of the University of Tasmania (approval number H0014476) was gained on October 7, 2014 (see Appendix 2). Similarly ethics clearances were obtained from the previously participating universities: University of New England - H0014476 (UNE adopted the same approval number as issued by the University of Tasmania), and the University of Newcastle - H-2014-0392. As a prelude to the redesign both staff and heads of division in the disciplines of Paramedicine and Pharmacy were consulted. Once support was gained from these key stakeholders relevant project amendments were submitted to and subsequently approved by the HREC.

Using the ‘bracketing’ technique, preconceptions and opinions regarding the study content were isolated before beginning the qualitative data collection (Barrasso, 2010; Bondas & Erikson, 2001). Bracketing must remain “constant and ongoing if descriptions are to achieve their purest form” (Speziale & Carpenter, 2007, p. 80) and may require the

researcher to explore, analyse and reflect upon their own relevant experiences. By gaining this personal insight through 'bracketing', personal biases may be illuminated and put aside. As a result the researcher is able to provide greater focus on the participant. To increase consistency within the interviews and aide in the bracketing process an interview plan was scripted (see Appendix 7).

The interview script was designed, and DVD presentation selected, with consideration of the students' age range and specialist discipline areas. Student interviews were conducted on either the medical science or the main university campus, whichever was most convenient to the participant. This provided a familiar and non-threatening environment for each interview. All participants willingly agreed to be involved in the study via the consent section of the online portal. Students received full disclosure regarding the content and processes of the study in the Information Sheet prior to consent being sought. Participants were able to withdraw at any time. Participants were offered the support of local counselling services should they feel a need as a result of their involvement. Interview sessions were recorded and each participant gave verbal permission for this at the commencement of each session.

Summary. This chapter outlined the phenomenological approach that underpinned this study and the two phases of the mixed-methods study design. The ethical considerations, approaches and issues that were addressed during the course of this study including the initial approval from the University of Tasmania's HREC and subsequent approval of amendments, have been outlined. The HREC approvals from the previously participating universities were also provided. Both the quantitative and qualitative methods have been explained.

The quantitative data were gathered through the IRI, the SDQ III, and the Student Data Survey. The qualitative data were collected through a semi-structured interview technique. These data were analysed using SPSS version 20 and Leximancer version 4.0. The results of the data analysis are outlined in Chapter 4.

Chapter 4: Results

This chapter presents the results of the current study. First an overview of the sample demographics across the three courses is provided in Table 9, followed by the quantitative and qualitative results.

Table 9

Sample demographics across all courses (N = 53)

Variables	Course			
	Medicine (*n* = 29)	Pharmacy (*n* = 9)	Paramedicine (*n* = 15)	Totals (*n*)
Gender				
Female	22	7	12	41
Male	7	2	3	12
Age				
≤ 21	25	6	7	38
≥ 22	4	3	8	15
Prior Tertiary Study				
Prior study	7	2	8	17
No prior study	22	7	7	36

The number of participants varied across each of the courses, with substantially more participants in the Medicine course compared to the Pharmacy and Paramedicine courses. Overall, there were just over 4 times as many female participants as there were male participants, and this pattern was consistent across all three courses. There were also considerably more participants under the age of 21 years compared to over 21 years, except in the case of Paramedicine, where the numbers were approximately equal for the two age groups. In addition, most participants had not undertaken prior higher education study (before commencing their course) except in Paramedicine where half of the participants had undertaken prior study and half had not.

Quantitative Results

The raw data collected from the Student Data Survey, the Self-Description Questionnaire III (Marsh, 1992b; Marsh et al., 2004; Marsh & O'Neill, 1984) and the Interpersonal Reactivity Index (M. H. Davis, 1980, 1983) were retrieved and collated according to the specified scoring instructions for the respective measures. These data were then entered into the statistical package SPSS for analysis.

Self-Description Questionnaire III (SDQIII). The SDQIII is a self-report instrument that measures 13 subscales of self-concept. Higher scores on each subscale indicate a more positive self-concept.

Initially data screening was undertaken on the sample using the Shapiro-Wilk test for normality (Field, 2009; Gravetter & Wallnau, 2007; Pallant, 2010), due to the small sample size; and Levene's test for homogeneity of variance. The SDQIII subscales were grouped into two categories: Academic and Non-Academic. The Academic subscales are: Verbal, Mathematics, Problem solving and General Academic. Of the nine Non-Academic subscales within the SDQIII, four were excluded as they were deemed not to be relevant. The included Non-Academic subscales were: Honesty, Appearance, Religion/Spirituality, Emotional Stability and General Self-Esteem.

In consideration of the Academic subscales of the SDQIII, results from the Shapiro-Wilk test demonstrated normality for the Maths, Academic and Problem-solving subscales, however the Verbal subscale was significant, $W(53) = 0.95$, $p < .05$; indicating non-normality. An inspection of the Normal Q-Q plot (see Appendix 9) revealed that the data for this subscale follows closely to the diagonal, so the data were retained in the study.

All testing for Homogeneity of Variance indicated no violations of this assumption on the Academic subscales of the SDQIII, with the Levene's test of equality ranging from $p = .39$ to $p = .83$ (see Appendix 10).

For the included Non-Academic subscales of the SDQIII, results from the Shapiro-Wilk test demonstrated normality for the Honesty subscale, however the Appearance, $W(53) = 0.95$, $p < .05$, Religion/Spirituality, $W(53) = 0.95$, $p < .05$, Emotional Stability, $W(53) = 0.90$, $p < .001$, and General Self-Esteem, $W(53) = 0.94$, $p < .05$, were significant, indicating non-normality.

Again, an inspection of the relevant Normal Q-Q plots (see Appendix 11) revealed that the data for the Appearance, Religion/Spirituality and General Self-Esteem subscales follows closely to the diagonal, so was retained in the study. In the case of Emotion Stability, three moderate outliers from the diagonal were identified but rather than delete the data, the most robust (against violations) statistical test values (e.g. Pillai's Trace) were used in the statistical analyses undertaken.

The testing for Homogeneity of Variance (see Appendix 12) indicated no violation of this assumption for all Non-Academic subscales of the SDQIII.

Mahalanobis Distances were calculated for each of the subscales to investigate the presence of multivariate outliers. Calculations were made using the critical chi-square value at an alpha level of .001, for Academic subscales: χ^2 (4) = 18.467; and for Non-Academic subscales: χ^2 (5) = 20.515. Two outlying cases were found on the Non-Academic subscales, χ^2 (5) = 23.513 and χ^2 (5) = 22.763. As these cases were not identified as outlying within the Academic subscales and the minimal degree to which these results sit outside the critical chi-square value, these two cases were retained in the study.

Internal reliability of the SDQIII was assessed for the sample, by calculation of alpha coefficients (Cronbach's α) for each of the subscales, the results of which are reported in Table 10. The resulting α coefficients ranged from .79 - .96 across all of the SDQIII subscales, indicating good internal reliability of the test.

Table 10

Internal reliability of all SDQIII subscales (Cronbach's α)

Subscale	α coefficient
Academic	
Mathematics	.96
Verbal	.79
Problem Solving	.80
General Academic	.87
Non Academic	
Physical Ability	.88
Physical Appearance	.91
Relations with Same Sex Peers	.81
Relations with Opposite Sex Peers	.80
Relations with Parents	.92
Spiritual Values/Religion	.93
Honesty/Trustworthiness	.82
Emotional Stability	.92
General Self Esteem	.95

Analysis if the Descriptive statistics for the SDQIII for Course by Gender, Age and Prior Study are reported in Table 11, Table 12 and Table 13. Bolded values indicate moderate to large differences in mean subscale scores between male and female participants, between participants 21 years and under, and those over 21 years, and between participants who had undertaken prior tertiary study and those who had not. The magnitude of differences between means were determined by calculations of Effect Size (see Table 20) and are highlighted here so as to direct the reader to several key points in the data of the Table below. Following Cohen's conventions, moderate differences between means refer to cases where the calculated effect sizes (Cohen's *d*) were > 0.5 and large differences had effect sizes of 0.8 and above.

Table 11

Descriptive statistics for the SDQIII subscales for Course by Gender

Subscale		Medicine		Paramedicine		Pharmacy	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Academic							
Mathematics	Female	57.8	*(10.9)*	55.5	*(11.0)*	59.0	*(15.8)*
	Male	55.0	*(17.1)*	55.0	*(9.2)*	64.5	*(19.1)*
Verbal	Female	**59.1**	***(7.8)***	59.3	*(10.6)*	53.9	*(12.0)*
	Male	**53.4**	***(9.6)***	57.3	*(10.7)*	54.0	*(0.0)*
Problem Solving	Female	53.0	*(9.9)*	57.3	*(6.3)*	**55.6**	***(9.2)***
	Male	53.6	*(9.8)*	57.3	*(13.9)*	**50.5**	***(6.6)***
General Academic	Female	64.8	*(8.2)*	**64.9**	***(9.4)***	64.3	*(7.9)*
	Male	61.4	*(8.9)*	**61.0**	***(2.7)***	62.0	*(5.7)*
Non Academic							
Physical Appearance	Female	47.9	*(13.4)*	48.9	*(16.4)*	53.9	*(9.7)*
	Male	44.9	*(12.2)*	46.0	*(7.6)*	51.0	*(7.7)*
Spiritual Values/ Religion	Female	42.8	*(23.2)*	41.8	*(27.1)*	44.4	*(15.4)*
	Male	52.9	*(17.8)*	46.3	*(19.7)*	58.0	*(33.9)*
Honesty/ Trustworthiness	Female	74.3	*(10.2)*	78.2	*(11.1)*	77.6	*(12.1)*
	Male	78.7	*(7.2)*	77.7	*(17.0)*	78.0	*(8.5)*
Emotional Stability	Female	54.3	*(13.2)*	57.3	*(15.7)*	55.9	*(12.2)*
	Male	51.6	*(14.1)*	54.7	*(20.6)*	60.5	*(6.4)*
General Self Esteem	Female	71.7	*(16.6)*	**75.3**	***(18.7)***	76.3	*(12.9)*
	Male	71.6	*(10.4)*	**61.0**	***(26.9)***	77.0	*(8.5)*

Table 12

Descriptive statistics for the SDQIII subscales for Course by Age Group

Subscale		Medicine		Paramedicine		Pharmacy	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Academic							
Mathematics	≤21	57.7	(12.7)	54.3	(9.7)	**54.5**	**(15.4)**
	≥ 22	53.3	(10.8)	56.4	(11.5)	**71.7**	**(7.8)**
Verbal	≤21	**56.9**	**(8.5)**	58.0	(9.4)	**51.8**	**(11.5)**
	≥ 22	**62.5**	**(6.8)**	59.8	(11.6)	**58.0**	**(7.8)**
Problem Solving	≤21	53.3	(9.6)	56.3	(7.4)	**51.7**	**(6.3)**
	≥ 22	51.8	(11.4)	58.1	(8.3)	**60.0**	**(11.4)**
General Academic	≤21	63.9	(8.1)	64.3	(8.8)	62.7	(7.7)
	≥ 22	64.5	(10.7)	64.0	(8.9)	66.0	(7.0)
Non Academic							
Physical Appearance	≤21	46.6	*(13.8)*	44.9	*(17.1)*	49.5	*(5.8)*
	≥ 22	50.5	*(5.5)*	51.4	*(12.9)*	60.7	*(11.2)*
Spiritual Values/	≤21	45.3	*(20.6)*	**34.4**	***(20.0)***	47.5	*(12.7)*
Religion	≥ 22	44.8	*(34.6)*	**50.0**	***(28.3)***	47.3	*(32.0)*
Honesty/	≤21	74.8	*(10.0)*	79.7	*(9.6)*	76.3	*(12.1)*
Trustworthiness	≥ 22	78.8	*(7.9)*	76.6	*(13.8)*	80.3	*(9.7)*
Emotional Stability	≤21	53.0	*(12.3)*	57.7	*(19.4)*	54.7	*(12.1)*
	≥ 22	57.5	*(19.8)*	55.8	*(13.6)*	61.3	*(8.4)*
General Self Esteem	≤21	70.9	*(14.4)*	69.4	*(23.0)*	**73.0**	***(11.3)***
	≥ 22	76.8	*(20.9)*	75.1	*(18.8)*	**83.3**	***(10.5)***

Table 13

Descriptive statistics for the SDQIII subscales for Course by Prior Tertiary Study

Subscale		Medicine		Pharmacy		Paramedicine	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Academic							
Mathematics	Prior Study	56.0	*(10.0)*	56.4	*(11.5)*	56.4	***(7.8)***
	No Prior Study	57.5	*(13.3)*	55.4	*(9.7)*	55.4	***(16.7)***
Verbal	Prior Study	59.6	*(8.5)*	59.8	*(11.6)*	59.8	***(9.9)***
	No Prior Study	57.1	*(8.5)*	58.0	*(9.4)*	58.0	***(10.5)***
Problem Solving	Prior Study	52.0	*(8.6)*	58.1	*(8.3)*	58.1	***(14.9)***
	No Prior Study	53.5	*(10.1)*	56.3	*(7.4)*	56.3	***(5.8)***
General Academic	Prior Study	61.6	*(8.9)*	64.0	*(8.9)*	64.0	*(9.9)*
	No Prior Study	64.8	*(8.2)*	64.3	*(8.8)*	64.3	*(7.1)*
Non Academic							
Physical Appearance	Prior Study	45.6	*(11.0)*	51.4	*(12.9)*	51.4	***(15.6)***
	No Prior Study	47.6	*(13.7)*	44.9	*(17.1)*	44.9	***(6.2)***
Spiritual Values/ Religion	Prior Study	47.7	*(25.3)*	**50.0**	***(28.3)***	**50.0**	***(15.6)***
	No Prior Study	44.5	*(21.7)*	**34.4**	***(20.0)***	**34.4**	***(17.5)***
Honesty/ Trustworthiness	Prior Study	**79.3**	***(6.0)***	76.6	*(13.8)*	76.6	***(9.2)***
	No Prior Study	**74.1**	***(10.4)***	79.7	*(10.4)*	79.7	***(11.2)***
Emotional Stability	Prior Study	57.0	*(16.2)*	55.9	*(13.6)*	55.9	***(9.9)***
	No Prior Study	52.6	*(12.4)*	57.7	*(19.4)*	57.7	***(11.1)***
General Self Esteem	Prior Study	72.4	*(21.0)*	75.1	*(18.8)*	75.1	***(14.9)***
	No Prior Study	71.5	*(13.4)*	69.4	*(23.0)*	69.4	***(11.0)***

In order to explore the differences between means on the Academic subscale on the SDQIII and the qualitative data that is reported later, a two-tailed Independent Samples t-test was undertaken for this subscale of the SDQIII and Gender, Age Group and Prior Tertiary Study. Levene's test of Homogeneity of Variance revealed no violation of this assumption and as a result Equal Variances are assumed for the t-test. A one-way ANOVA was also conducted on the Academic subscale for the group 'Course' that included the groups 'Medicine', 'Paramedicine' and 'Pharmacy'. The results from these tests were non-significant and relevant SPSS outputs can be found in Appendix 13.

In order to more deeply explore the differences between means, as shown in Tables 11, 12 and 13 (Course by Age Group, Gender and Prior Tertiary Study) two-way MANOVAs were undertaken for each of subscales within the Academic and Non-Academic groups separately, producing non-significant results. As some test assumptions were violated, Pillai's Trace values for main effects and interactions are reported in Tables 14 – 19. The corresponding SPSS output files can be found in Appendix 14.

Table 14

Pillai Trace values: Course x Gender for SDQIII Academic subscales

Effect	Value	*F*	*df*	Sig *(p)*
Intercept	.98	518.59	4, 44	< .001
Course	.07	.391	8, 90	.92
Gender	.04	.41	4, 44	.80
Course x Gender	.08	.44	8, 90	.89

Table 15

Pillai Trace values: Course x Gender for SDQIII Non-Academic subscales

Effect	Value	*F*	*df*	Sig *(p)*
Intercept	.98	411.46	5, 43	< .001
Course	.12	.54	10, 88	.86
Gender	.05	.48	5, 43	.79
Course x Gender	.11	.53	10, 88	.87

Table 16

Pillai Trace values: Course x Age Group for SDQIII Academic subscales

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	642.66	4, 44	< .001
Course	.15	.88	8, 90	.53
Age Group	.09	1.10	4, 44	.39
Course x Age Group	.12	.73	8, 90	.67

Table 17

Pillai Trace values: Course x Age Group for SDQIII Non-Academic subscales

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	522.89	5, 43	< .001
Course	.07	.31	10, 88	.98
Age Group	.07	.64	5, 43	.69
Course x Age Group	.09	.44	10, 88	.93

Table 18

Pillai Trace values: Course x Prior Tertiary Study for SDQIII Academic subscales

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	616.47	4, 44	< .001
Course	.12	.72	8, 90	.66
Prior Tertiary Study	.08	1.01	4, 55	.41
Course x Prior Tertiary Study	.06	.37	8, 90	.94

Table 19

Pillai Trace values: Course x Prior Study for SDQIII Non-Academic subscales

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	529.93	5, 43	< .001
Course	.12	.56	10, 88	.84
Prior Tertiary Study	.07	.66	5, 43	.66
Course x Prior Tertiary Study	.23	1.15	10, 88	.34

In addition, differences between means of subscale scores across Age Group, Course, Gender and Prior Tertiary Study were explored by calculating effect sizes (Cohen's *d*). This analysis was considered particularly important due to the relatively small sample size and uneven samples across variables, which may have led to reduced power of the statistical test. Effect sizes are reported in Tables 20-21. Moderate and large effect sizes are highlighted in bold.

Table 20

SDQIII Effect Sizes for Course, by Age Group, Gender, Prior Study: Academic Subscales

Academic Subscales	Medicine (Cohen's *d*)	Paramedicine (Cohen's *d*)	Pharmacy (Cohen's *d*)
Mathematics			
Age Group	0.37	-0.20	**-1.41**
Gender	0.20	0.05	-0.13
Prior Study	-0.13	0.09	**0.81**
Verbal			
Age Group	**-0.73**	-0.17	**-0.63**
Gender	**0.65**	0.19	0.01
Prior Study	0.29	0.17	**0.77**
Problem Solving			
Age Group	0.14	-0.23	**-0.90**
Gender	-0.06	0.00	**0.64**
Prior Study	-0.16	0.23	**0.92**
General Academic			
Age Group	-0.06	0.03	-0.45
Gender	0.40	**0.56**	0.33
Prior Study	-0.37	-0.03	0.34

Table 21

SDQIII Effect Sizes for Course, by Age, Gender, Prior Tertiary Study: Non-Academic Subscales

Non-Academic Subscales	Medicine (Cohen's *d*)	Paramedicine (Cohen's *d*)	Pharmacy (Cohen's *d*)
Physical Appearance			
Age Group	-0.37	-0.43	**-1.21**
Gender	0.23	0.23	0.33
Prior Tertiary Study	-0.16	0.43	**0.95**
Spiritual Values/ Religion			
Age Group	0.02	**-0.64**	0.01
Gender	-0.49	-0.19	-0.52
Prior Tertiary Study	0.14	**0.64**	**-1.35**
Honesty/ Trustworthiness			
Age Group	-0.44	0.26	-0.36
Gender	-0.50	0.04	-0.04
Prior Tertiary Study	**0.61**	-0.25	**0.86**
Emotional Stability			
Age Group	-0.27	0.11	**-0.63**
Gender	0.20	0.14	-0.47
Prior Tertiary Study	0.31	-0.11	**0.87**
General Self Esteem			
Age Group	-0.33	-0.27	**-0.94**
Gender	0.01	**0.62**	-0.06
Prior Tertiary Study	0.05	0.27	**0.70**

Interpersonal Reactivity Index (IRI). The IRI is a 28-item self-report instrument that measures 4 subscales of empathy. Higher scores on each subscale indicate a more positive response.

Initially, normality testing was undertaken on all data using the Shapiro-Wilk test for normality, due to the small sample size; and Levene's test for homogeneity of variance. The dependent variables, Fantasy, Perspective Taking and Personal Distress returned a non-significant result therefore the assumption of normality had been met for these subscales: IRI subscale 1 (Fantasy), $W(53) = 0.98$, $p > .05$; IRI subscale 2 (Perspective Taking), $W(53) = 0.97$, $p > .05$ and IRI subscale 4 (Personal Distress), $W(53) = 0.95$, $p > .05$. The result for IRI subscale 3 (Empathic Concern), $W(53) = 0.20$, $p < .05$, was significant, indicating non-normality. A further inspection of the relevant Normal Q-Q plots revealed that the data for the Empathic Concern subscale follows relatively closely to the diagonal, so the data was retained in the study. SPSS outputs pertaining to the IRI assumption testing can be found in Appendix 15.

All testing for Homogeneity of Variance indicated no violations of this assumption on all subscales of the IRI, with the Levene's test of equality ranging from $p = .48$ to $p = .74$.

Mahalanobis Distances were calculated for each of the IRI subscales to investigate the presence of multivariate outliers. Calculations were made using the critical chi-square value at an alpha level of .001, for all subscales: χ^2 (4) = 18.467. These results indicated that the data contained no multivariate outliers and therefore all data were retained in the study.

Internal reliability of the IRI was assessed for the sample, by calculation of alpha coefficients (Cronbach's α) for each of the subscales, the results of which are reported in Table 22. The range of α coefficients ranged from .66 - .79 across all of the IRI subscales, indicating satisfactory internal reliability for all subscales.

Table 22

Internal reliability of all IRI subscales (Cronbach's α)

Subscale	α coefficient
Fantasy	.79
Perspective Taking	.73
Empathic Concern	.69
Personal Distress	.66

Descriptive Statistics for the IRI were analysed by Course for each other variable and are reported in Table 23, Table 24 and Table 25.

Table 23

Descriptive statistics for the IRI subscales for Course by Gender

Subscale		Medicine		Paramedicine		Pharmacy	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Fantasy	Female	**20.1**	***(4.1)***	**16.9**	***(5.5)***	**20.6**	***(3.2)***
	Male	**13.7**	***(3.3)***	**22.3**	***(2.5)***	**15.5**	***(0.7)***
Perspective Taking	Female	20.2	*(3.8)*	21.2	*(2.9)*	**22.0**	***(3.3)***
	Male	19.9	*(3.4)*	19.3	*(4.9)*	**14.5**	***(3.5)***
Empathic Concern	Female	23.0	*(3.8)*	21.3	*(2.7)*	**21.0**	***(4.4)***
	Male	21.6	*(3.2)*	21.7	*(5.5)*	**15.5**	***(5.0)***
Personal Distress	Female	10.6	*(3.4)*	**7.3**	***(4.7)***	**10.6**	***(4.2)***
	Male	11.0	*(5.3)*	**12.3**	***(4.6)***	**12.5**	***(0.7)***

Table 24

Descriptive statistics for the IRI subscales for Course by Age Group

Subscale		Medicine		Paramedicine		Pharmacy	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Fantasy	≤21	18.7	*(4.9)*	**15.3**	***(5.9)***	**20.5**	***(3.5)***
	≥ 22	17.8	*(4.5)*	**20.4**	***(3.8)***	**17.3**	***(3.2)***
Perspective Taking	≤21	**20.4**	***(3.8)***	**19.7**	***(3.5)***	20.7	*(4.9)*
	≥ 22	**18.3**	***(1.3)***	**21.8**	***(3.0)***	19.7	*(4.6)*
Empathic Concern	≤21	22.8	*(3.2)*	**20.4**	***(3.1)***	**20.7**	***(5.1)***
	≥ 22	21.5	*(6.5)*	**22.3**	***(3.4)***	**18.0**	***(4.6)***
Personal Distress	≤21	**11.1**	***(3.8)***	**7.1**	***(4.2)***	11.2	*(4.0)*
	≥ 22	**7.8**	***(3.1)***	**9.4**	***(4.2)***	10.7	*(4.0)*

Table 25

Descriptive statistics for the IRI subscales for Course Prior Tertiary Study

Subscale		Medicine		Paramedicine		Pharmacy	
		$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*	$\bar{x}$	*(SD)*
Fantasy	Prior Study	16.9	*(4.9)*	**20.4**	***(3.8)***	18.0	*(4.2)*
	No Prior Study	19.1	*(4.7)*	**15.3**	***(5.9)***	19.9	*(3.6)*
Perspective Taking	Prior Study	19.6	*(3.4)*	**21.8**	***(3.0)***	21.0	*(5.7)*
	No Prior Study	20.3	*(3.8)*	**19.7**	***(3.5)***	20.1	*(4.7)*
Empathic Concern	Prior Study	22.1	*(5.3)*	**22.3**	***(3.4)***	**17.5**	***(6.4)***
	No Prior Study	22.8	*(3.1)*	**20.4**	***(3.1)***	**20.4**	***(4.7)***
Personal Distress	Prior Study	**8.3**	***(2.6)***	9.4	*(5.0)*	9.5	*(5.0)*
	No Prior Study	**11.4**	***(3.9)***	7.1	*(5.0)*	11.4	*(3.7)*

In order to explore the differences between means on the IRI a two-tailed Independent Samples t-test was undertaken for the four subscales of the IRI and Age Group, Gender and Prior Tertiary Study. Again Levene's test of Homogeneity of Variance revealed no violation of this assumption and as a result Equal Variances are assumed for the t-test. SPSS outputs pertaining to this testing can be found in Appendix 16.

For the group Gender, only the Fantasy subscale returned a significant result. On average, participants in the group 'Gender – Female' achieved higher scores on the Fantasy subscale (M = 19.27, SE = .71) than did participants in the group 'Gender – Male' (M = 16.17, SE = 1.33). This difference was significant $t(51) = 2.06$, $p < .05$ and represents a medium-sized effect $r = .28$.

No significant results were identified in the IRI analyses for the groups 'Age Group' or 'Prior Tertiary Study'.

A one-way ANOVA was conducted on the IRI subscales for the group 'Course' that included the groups 'Medicine', 'Paramedicine' and 'Pharmacy'. The results of this were also non-significant. SPSS outputs pertaining to this test can be found in Appendix 17.

In order to more deeply explore the grouped differences between means on the IRI, as shown in Tables 23, 24 and 25 (Course by Age Group, Gender and Prior Study) two-way MANOVAs were undertaken for each of the independent variables. Pillai Trace values for main effects and interactions are reported in Tables 26 – 28. The corresponding SPSS output files can be found in Appendix 18.

Table 26

Pillai Trace values for IRI subscales: *Course x Gender*

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.97	377.55	4, 44	< .001
Course	.20	1.24	8, 90	.29
Gender	.14	1.82	4, 44	.14
Course x Gender	.38	2.62	8, 90	.01

Table 27

Pillai Trace values for IRI subscales: *Course x Age Group*

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	445.92	4, 44	< .001
Course	.20	1.27	8, 90	.27
Gender	.01	.14	4, 44	.97
Course x Gender	.23	1.43	8, 90	.19

Table 28

Pillai Trace values for IRI subscales: *Course x Prior Tertiary Study*

Effect	Value	*F*	*df*	Sig (*p*)
Intercept	.98	426.85	4, 44	< .001
Course	.22	1.35	8, 90	.23
Gender	.03	.32	4, 44	.86
Course x Gender	.24	1.56	8, 92	.15

As with the data from the SDQIII, the differences between means of subscales Course, Gender, Age Group and Prior Study for the IRI were further explored by calculating effect sizes (Cohen's *d*). Again, this analysis was considered particularly important due to the relatively small sample size and uneven samples across variables, which may have led to reduced power of the statistical test. Effect Sizes are reported in Table 29.

Table 29

IRI Effect Sizes for Course, by Age Group, Gender, Prior Tertiary Study

	Medicine (Cohen's *d*)	Paramedicine (Cohen's *d*)	Pharmacy (Cohen's *d*)
Fantasy			
Age Group	0.19	**-1.03**	**-1.03**
Gender	**1.72**	**-1.26**	**-1.26**
Prior Tertiary Study	-0.46	**1.03**	**1.03**
Perspective Taking			
Age Group	**0.74**	**-0.64**	**-0.64**
Gender	0.08	0.47	0.47
Prior Tertiary Study	-0.19	**0.64**	**0.64**
Empathic Concern			
Age Group	0.25	**-0.58**	**-0.58**
Gender	0.40	-0.09	-0.09
Prior Tertiary Study	-0.16	**0.58**	**0.58**
Personal Distress			
Age Group	**0.95**	**-0.55**	**-0.55**
Gender	-0.09	**-1.08**	**-1.08**
Prior Tertiary Study	**-0.94**	0.46	0.46

Having explored the results from both the SDQIII and the IRI, further investigation was needed to consider the degree to which particular student demographics may influence levels of empathic responding, academic self-concept and also to what extent these latter variables may in turn effect the acquisition of well-developed clinical skills.

Initially multiple regression was employed to develop a model for predicting the role of selected student demographics, specifically Age, Course, Gender and Prior Tertiary Study on levels of empathic responding as identified through the IRI subscales. Dummy coding was employed for the categorical variable Age, creating subgroups for students over 21 and those 21 years and under.

Analysis of descriptive statistics and assumption testing for normality and the presence of outliers was undertaken and reported in previous sections however additional assumption testing pertaining to the multiple linear regression is reported here. Tests to investigate the

assumption of collinearity indicated that multicollinearity was not a concern. The collinearity statistics are included in the SPSS outputs in Appendix 20.

The analyses for the IRI subscales Fantasy, Perspective Taking, Empathic Concern and Personal Distress all met the assumption of independent errors (Durbin-Watson values = 1.91, 1.65, 1.60, and 1.98 respectively). Further, the histogram of standardised residuals indicated that the data contained approximately normally distributed errors, as did the normal P-P plot of standardised residuals, which showed points that were not completely on the line, but close. Please see relevant SPSS outputs in Appendix 19.

Three-stage hierarchical multiple regressions (Bostic, 2014; Lemberger, 2006; Pallant, 2010) were conducted to predict levels of the subscales of the IRI after controlling for the influence of the identified demographic measures: Age, Course, Gender and Prior Tertiary Study. The Gender variables were entered at step 1, with Course variables at step 2, and step 3 consisted of Age and Prior Tertiary Study. Results of the analyses are reported in Table 30.

For the Fantasy subscale significant results in the model generated at Step 1 suggest that Gender explained 6% of the variance in the results. After the entry of Course in Step 2 the total variance explained by the model as a whole was 9%. Further, when Age and Prior Study were entered into Step 3, the total variance in the results for the Fantasy subscale explained by the model was 12%.

The results of the analyses for the demographics on the Perspective Taking did not return any significant results, however in considering the results for the Empathic Concern subscale of the IRI, significant results in the model generated at Step 2 suggest that Course explained 6% of the variance in the results on this subscale. The total variance in the results for the Empathic Concern subscale explained by the model was 11%.

Analysis of the results for the Personal Distress subscale did not reveal any significant results. Please see Appendix 20 for the relevant SPSS output files.

Table 30

Hierarchical Multiple Regression Analyses Predicting IRI Subscale Results from Demographic Data

	IRI Subscales							
	Fantasy		Perspective Taking		Empathic Concern		Personal Distress	
Predictor	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.06*		.03		.01		.02	
Male		-.28*		-.23		-.18		.20
Step 2	.03		-.00		.06		.05	
Male		-.28*		-.23		-.18		.19
Pharmacy1		.06		.02		-.29*		.04
Paramed1		-.07		.07		-.16		-.24
Step 3	.02		-.04		.02		.02	
Male		-.32*		-.20		-.19		.16
Pharmacy1		.01		.05		-.29		.02
Paramed1		-.12		.09		-.14		-.23
TwentyOne or Younger_No		.33		-.16		-.01		.09
PTS_No		.28		-.15		.04		.16
Total R^2	.12		.06		.11		.11	

*$p < .05$.

The analysis of the relationships between the demographic data and the Academic Self-Concept met the assumption of independent errors with a Durbin-Watson value = 1.77. The histogram of standardised residuals indicated again that the data contained approximately normally distributed errors, as did the normal P-P plot of standardised residuals, which showed points that were not completely on the line, but close. This multiple regression analysis did not produce any significant findings. The results are reported in Table 31. Please see relevant SPSS outputs in Appendix 21 and 22.

Table 31

Hierarchical Multiple Regression Analysis Predicting the SDQIII Subscale Result from Demographic Data

	Academic Self-Concept	
Predictor	ΔR^2	β
Step 1	.01	
Male		-.18
Step 2	-.03	
Male		-.18
Pharmacy1		-.01
Paramed1		.00
Step 3	-.00	
Male		-.24
Pharmacy1		-.09
Paramed1		-.05
TwentyOne or Younger_No		.44
PTS_No		.47
Total R^2	.09	

*$p < .05$.

The last section of the analyses involved investigation of Clinical Skills Acquisition. The Descriptive statistics for scores on Clinical Skills Acquisition are reported in Table 32. The relevant SPSS output files can be found in Appendix 23.

Table 32

Descriptive statistics for Clinical Skills Acquisition by Age, Course, Gender and Prior Tertiary Study

Demographics		$\bar{x}$	*(SD)*
Age	≤21	72.3	*(10.3)*
	≥ 22	77.0	*(10.0)*
Course	Medicine	68.9	*(8.7)*
	Paramedicine	83.1	*(6.0)*
	Pharmacy	73.7	*(11.0)*
Gender	Female	75.4	*(9.5)*
	Male	66.4	*(10.7)*
Prior Tertiary Study	Prior Study	75.7	*(10.1)*
	No Prior Study	72.6	*(10.5)*

Note: Mean scores are displayed as a percentage figure.

To explore the relationships between each of the four subscales of the IRI and the clinical skills outcomes a two-tailed correlation analysis was undertaken, however this did not produce significant results. The Fantasy subscale was not significantly correlated with Clinical Skills Acquisition, $r = .10$, $p = .47$. The Perspective Taking subscale was also not significantly correlated with Clinical Skills Acquisition, $r = -.05$, $p = .74$. Results for the Empathic Concern subscale were $r = -.04$, $p = .80$; and for the Personal Distress subscale $r = -.08$, $p = .56$ which were again non-significant. Further, to explore the relationship between the Academic Self-Concept subscale of the SDQIII an additional correlation was undertaken, $r = .20$, $p = .16$ which was also non-significant. The relevant SPSS output files can be found in Appendix 24.

Clinical Skills Acquisition. Finally a further multiple regression analysis was undertaken to predict levels of Clinical Skills Acquisition based on the influence of the identified demographic measures: Age, Course, Gender and Prior Tertiary Study. Again the Gender variables were entered at step 1, with the Course variables at step 2, and the final step consisting of Age and Prior Tertiary Study. For Clinical Skills Acquisition significant results

in the model generated at Step 1 suggest that Gender explains 11% of the variance in the results. After the entry of Course in Step 2 significant results were again obtained for the influence of Gender and also Course, with the total variance explained by the model as a whole was 40%.

Further, when Age and Prior Study were entered into Step 3, the total variance in the results for Clinical Skills Acquisition explained by the model was 45%. The results of this analysis are reported in Table 33.

Table 33

Hierarchical Multiple Regression Analyses Predicting Clinical Skills Acquisition From Demographic Data

	Clinical Skills Acquisition	
Predictor	ΔR^2	β
Step 1	.11*	
Male		-.36*
Step 2	.40*	
Male		-.30*
Pharmacy1		.17
Paramed1		.58*
Step 3	.39	
Male		-.33*
Pharmacy1		.15
Paramed1		.58*
TwentyOne or Younger_No		.11
PTS_No		.16
Total R^2	.45	

*$p < .05$.

The Big Fish Little Pond Effect (BFLPE). Data gathered from the Student Data Survey (SDS) displays participants' expectations on a number of variables that provide an indication of the academic self-concept for each student at the commencement of their course. The Grade Point Average (GPA) has been calculated for semester 1 and semester 2 and can be compared with the students' own predictions of their performance. GPA points are awarded as follows: Pass grade (50-59%) – 4, Credit grade (60-69%) – 5, Distinction grade (70-79%) – 6, and a Higher Distinction grade (80-100%) – 7. For each participant the tables display whether or not they achieved their personal expected academic outcomes. Two calculations were undertaken: one including all participants, and then a second, including only domestic students to examine whether these students were more likely to be impacted by the BFLPE. For the second calculation students who were included in the sample identified as Australian citizens, or who had dual citizenship with one being Australian; other students were identified as International.

The initial calculations revealed that for Medicine students, 14 of 29 participants, or 48.28% did not achieve their personal expected academic outcomes. For Paramedicine students, 4 of 14 participants, or 28.57% did not achieve their expected academic outcomes. The student who did not continue with enrolment in the course was excluded from this calculation. For Pharmacy students, 2 of 9 participants, or 22.22% did not achieve their personal expected academic outcomes.

The second set of calculations revealed that for domestic Medicine students, 13 of 26, or 50% did not achieve their personal expected academic outcomes. For Paramedicine students, the data remained unchanged as the only student identified as International did not continue with their enrolment in the course. For Pharmacy students, 16% did not achieve their personal expected academic outcomes.

Table 34

Participants' commencement expectations: Course – Medicine

Participant ID	Expected to be accepted into course	Predicted average % at end of Sem 1	Predicted ranking*	GPA Sem 1	GPA Sem 2	Academic (%) expectations Achieved?
201654	Yes	90	2	6.00	6.00	No
201655	Yes	85	2	6.00	5.00	No
201661	Yes	80	2	5.00	5.00	No
201666	Yes	70	2	7.00	7.00	Yes
201516	Yes	65	3	5.00	4.00	No
201542	Yes	70	3	6.00	6.00	Yes
201653	Yes	60	3	5.00	5.00	No
201656	Yes	62	3	4.00	6.00	Yes
201662	Yes	60	3	6.00	7.00	Yes
201676	**Yes**	**75**	**3**	**5.00**	**5.00**	**No**
201512	Yes	70	4	5.00	5.00	No
201514	Yes	60	4	5.00	6.00	Yes
201517	Yes	70	4	5.00	6.00	No
201659	Yes	70	4	6.00	5.00	No
201677	Yes	70	4	7.00	7.00	Yes
201563	Yes	68	5	6.00	6.00	Yes
201669	Yes	72	5	4.00	5.00	No
201520	No	65	3	5.00	4.00	No
201521	**No**	**75**	**3**	**6.00**	**6.00**	**Yes**
201543	No	70	3	6.00	6.00	Yes
201553	No	75	3	4.00	4.00	No
201556	No	80	3	6.00	6.00	No
201566	No	50	3	5.00	5.00	Yes
201696	No	65	3	5.00	5.00	Yes
201674	No	65	4	4.00	4.00	No
201675	No	65	4	5.00	5.00	Yes
201698	No	50	4	5.00	5.00	Yes
201564	**No**	**60**	**5**	**6.00**	**6.00**	**Yes**
201670	No	60	5	5.00	5.00	Yes

*1 = top 10%, 2 = top 20%, 3 = above average, 4 = about average, 5 = below average

Note. International student data is in bold

Table 35

Participants' commencement expectations: Course – Paramedicine.

Participant ID	Expected to be accepted into course	Predicted average % at end of Sem 1	Predicted ranking*	GPA Sem 1	GPA Sem 2	Academic (%) expectations Achieved?
201621	Yes	80	1	6.25	6.75	Yes
201689	Yes	85	1	6.75	6.75	Yes
201606	Yes	75	2	6.25	6.25	Yes
201609	Yes	82	2	6.75	7.00	Yes
201622	Yes	80	2	6.00	6.25	Yes
201643	Yes	75	2	6.33	7.00	Yes
201695	Yes	80	2	6.25	5.88	No
201608	Yes	77	3	6.00	5.38	No
201639**	**Yes**	**80**	**3**	-	-	-
201683	Yes	75	3	5.67	6.67	Yes
201607	Yes	65	4	5.25	6.25	Yes
201611	Yes	80	4	5.75	6.00	No
201625	No	70	3	6.00	6.25	Yes
201650	No	70	3	6.25	6.25	Yes
201618	No	60	4	2.75	4.66	No

Note. International student data is in bold
*1 = top 10%, 2 = top 20%, 3 = above average, 4 = about average, 5 = below average
**Student withdrew from the course

Table 36

Participants' commencement expectations: Course – Pharmacy.

Participant ID	Expected to be accepted into course	Predicted average % at end of Sem 1	Predicted ranking*	GPA Sem 1	GPA Sem 2	Academic (%) expectations Achieved?
201636	Yes	80	2	5.00	2.25	No
201641	Yes	80	2	7.00	7.00	Yes
201644	Yes	75	2	4.25	7.00	Yes
201647	**Yes**	**65**	**2**	**6.00**	**5.00**	**Yes**
201634	**Yes**	**70**	**3**	**5.50**	**5.50**	**Yes**
201637	Yes	70	3	6.75	6.50	Yes
201672	Yes	80	3	6.50	4.50	No
201684	Yes	70	3	6.75	6.25	Yes
201648	**Yes**	**72**	**4**	**6.50**	**6.00**	**Yes**

Note. International student data is in bold
*1 = top 10%, 2 = top 20%, 3 = above average, 4 = about average, 5 = below average

Qualitative Results

The qualitative analyses were undertaken using Leximancer version 4 and conducted using more general categories of data initially and then moving to more specific. Initially a general analysis for themes and concepts was undertaken on the entirety of the interview data for each set of participant groups by Age Group, Course, Gender, and Prior Tertiary Study. The results are reported below. Each analysis is identified by category and subgroup and the manual adjustments to concept analysis are identified.

For each group set there are three pieces of data reported:

1. The concept map which displays the key identified concepts, their place within themes and the connectivity between each theme and concept. Concepts are highlighted by Leximancer from within the text and the concept-seed word is identified. The concept also displays the relationship from one concept to another. The main concept is depicted by a larger node (dot) within each colour-coded theme, with less prominent concepts having smaller nodes.
2. The thematic summary. This is a colour-coded key to the themes displayed in the concept map with the most significant themes being represented in 'warm' colours, moving through to themes of lesser significance being represented by 'cool' colours. This coding technique has its basis in the colour-wheel, "The themes aid interpretation by grouping the clusters of concepts, and are shown as coloured circles on the map" (A. E. Smith, 2011, p. 14).
3. The concept relevance. This graph displays the ranked relevance of the concepts through both a raw 'count' of the occurrences within the related text, and the percentage relevance to the identified themes. The relative importance of the concepts are again depicted using the colour-wheel technique.

General Analyses

General analyses by 'Age'.

Group: Over 21.

Concepts manually merged: Paramedic and paramedics, thought and thinking.

Concepts manually removed: Doing, down, guess, probably, seemed, stuff, things.

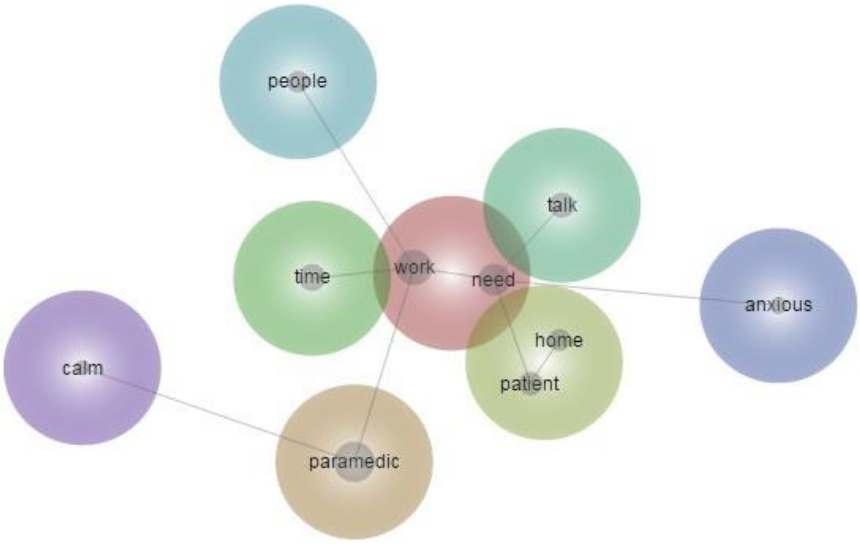


Figure 6. Concept map for General Analysis: Age – Over 21.

Theme	Connectivity	Relevance
work	100%	
paramedic	62%	
patient	59%	
time	38%	
talk	34%	
people	28%	
anxious	19%	
calm	16%	

Figure 7. Thematic summary for General Analysis: Age – Over 21.

Word-Like	Count	Relevance
paramedic	51	100%
people	20	39%
work	19	37%
time	18	35%
talk	15	29%
anxious	14	27%
calm	14	27%
need	13	25%
patient	12	24%
home	10	20%

Figure 8. Concept relevance for General Analysis: Age – Over 21.

The general analysis of the full interview data for students from all courses who were aged over 21 revealed the main theme is that of ‘work’ and within that theme the main concepts are ‘work’ and ‘need’. The second strongest theme for this group is ‘paramedic’ which is also the concept. The main theme is closely related to the themes of ‘patient’, which includes the concept of ‘home’. Other significant themes are ‘time’, and ‘talk’. The other theme that is identified as significant is that of ‘people’, which is directly related to the theme and concept of ‘work’.

The general analysis of the full interview data for students from all courses who were aged under 21 revealed the main theme is that of ‘trying’ and within that theme the additional concept is ‘feel’. The second strongest theme for this group is ‘paramedic’ and within that theme the additional concept is ‘brother’. This theme is isolated from the primary cluster of results. Other significant themes are ‘situation’, ‘time’, ‘people’ and ‘work’.

In summary, the analysis revealed that regardless of age, common themes across all students were ‘work’, ‘time’ and ‘people’. For students under the age of 21 ‘trying’ was a significant theme, where for students over 21 significant themes were need, home, patient and talk.

General analyses by 'Course'.

Group: Medicine.

Concepts manually merged: Try and trying.

Concepts manually removed: doing, down, guess, probably, sure, things, wrist, year.

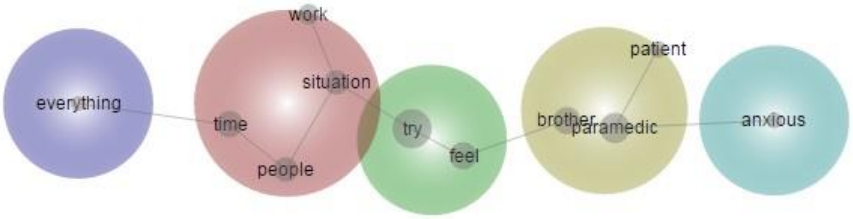


Figure 9. Concept map for General Analysis: Course – Medicine.

Theme	Connectivity	Relevance
time	100%	
paramedic	79%	
try	77%	
anxious	13%	
everything	11%	

Figure 10. Thematic summary for General Analysis: Course – Medicine.

Word-Like	Count	Relevance
try	48	100%
people	29	60%
paramedic	27	56%
feel	27	56%
time	27	56%
situation	26	54%
work	26	54%
brother	22	46%
anxious	22	46%
patient	20	42%
everything	19	40%

Figure 11. Concept relevance for General Analysis: Course – Medicine.

The general analysis of the full interview data for students in the course group 'Medicine' revealed the main theme is that of 'time'. The next most significant theme is 'paramedic' which includes the additional concepts of 'patient' and 'brother'. These are connected to the main theme through the concepts of 'try' and 'feel'. 'Anxious' and 'everything' are the other significant themes for Medicine students which achieve a relevance of 46% and 40% respectively.

Group: Paramedicine.

Concepts manually merged: Nil.

Concepts manually removed: doing, guess, things, try, year, stuff, obviously, coming.

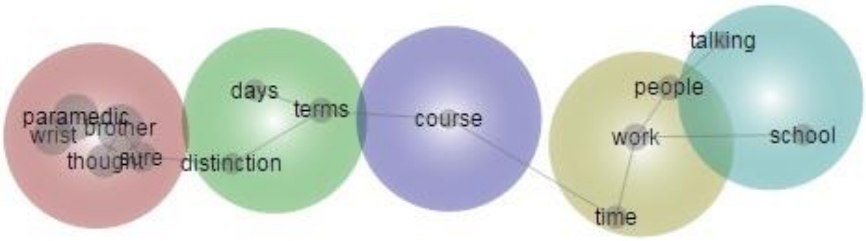


Figure 12. Concept map for General Analysis: Course – Paramedicine.

Theme	Connectivity	Relevance
brother	100%	
work	30%	
terms	25%	
school	12%	
course	06%	

Figure 13. Thematic summary for General Analysis: Course – Paramedicine.

Word-Like	Count	Relevance
paramedic	24	100%
time	20	83%
people	17	71%
brother	16	67%
school	16	67%
wrist	14	58%
sure	14	58%
thought	13	54%
work	13	54%
course	11	46%
talking	10	42%
terms	9	38%
distinction	9	38%
days	8	33%

Figure 14. Concept relevance for General Analysis: Course – Paramedicine.

The general analysis of the full interview data for students in the course group ‘Paramedicine’ revealed the main theme is that of ‘brother’. The next most significant theme is ‘work’ which includes the additional concepts of ‘people’ and ‘time’. These are closely related to the theme ‘school’ which includes the concept ‘talking’, but are separated from the principal theme.

Group: Pharmacy.

Concepts manually merged: Nil.

Concepts manually removed: doing, down, josh, look, probably, things, seemed, suppose.

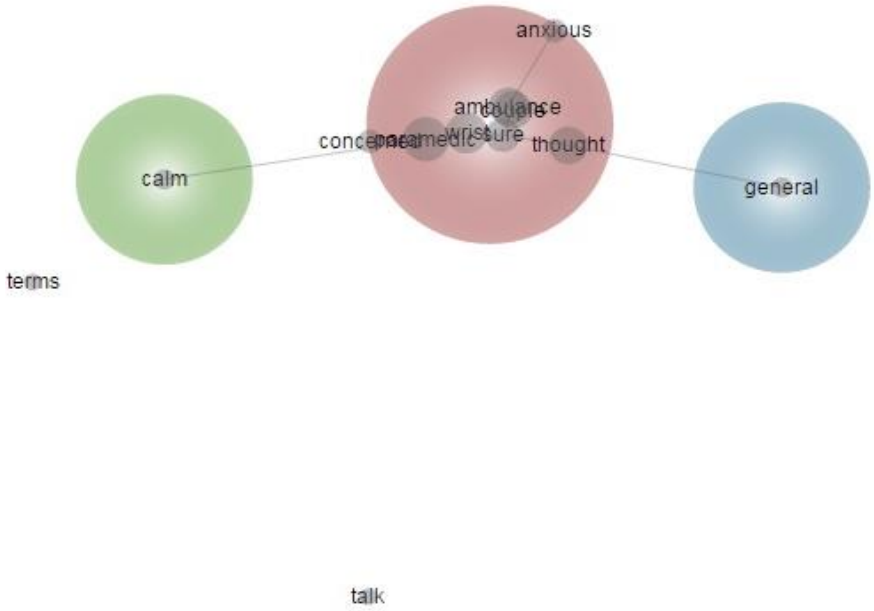


Figure 15. Concept map for General Analysis: Course – Pharmacy.

Theme	Connectivity	Relevance
paramedic	100%	
general	02%	
calm	02%	

Figure 16. Thematic summary for General Analysis: Course – Pharmacy.

Word-Like	Count	Relevance
talk	7	100%
paramedic	6	86%
thought	6	86%
calm	5	71%
wrist	4	57%
sure	4	57%
anxious	4	57%
concerned	4	57%
general	4	57%
couple	3	43%
ambulance	3	43%
terms	3	43%

Figure 17. Concept relevance for General Analysis: Course – Pharmacy.

The general analysis of the full interview data for students in the course group ‘Pharmacy’ revealed the main theme is that of ‘paramedic’. Other relevant concepts that were revealed included ‘thought’, ‘calm’ and ‘talk’, although the latter appears as an outlier.

In summary, the analysis revealed contrasting themes across the three course groupings, with students in Medicine focussing on time, people and work, whilst Paramedicine students

also revealed importance around time, people work and talking. The concept ‘talk’ also ranked highly for Pharmacy students.

General analyses by 'Gender'.

Group: Female.

Concepts manually merged: Nil.

Concepts manually removed: Doing, down, guess, probably, seemed, stuff, sure, things, wrist, trying.

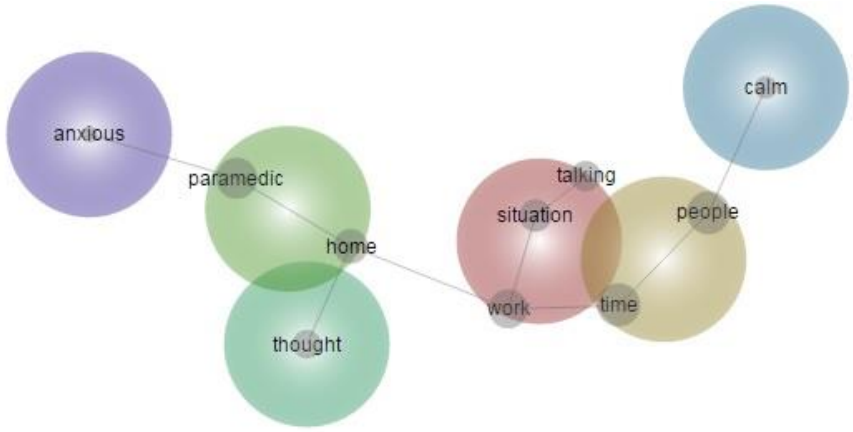


Figure 18. Concept map for General Analysis: Gender – Female.

Theme	Connectivity	Relevance
work	100%	
time	89%	
paramedic	76%	
thought	26%	
calm	18%	
anxious	11%	

Figure 19. Thematic summary for General Analysis: Gender – Female.

Word-Like	Count	Relevance
paramedic	48	100%
time	39	81%
people	38	79%
thought	31	65%
work	30	62%
anxious	27	56%
situation	26	54%
calm	25	52%
talking	21	44%
home	20	42%

Figure 20. Concept relevance for General Analysis: Gender – Female.

The general analysis of the full interview data for students in the group 'Female' revealed the main theme is that of 'work', which also includes the concepts 'situation' and 'talking'. The next most significant theme is 'time' which includes the additional concept of 'people'. The concept of 'work' is also directly related to the concept of 'home'.

Group: Male.

Concepts manually merged: Nil.

Concepts manually removed: Doing, down, guess, sure, things, wrist.

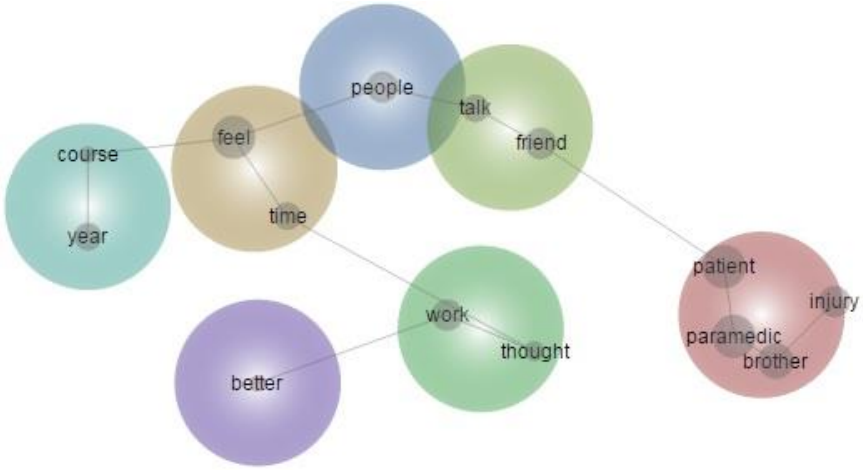


Figure 21. Concept map for General Analysis: Gender – Male.

Theme	Connectivity	Relevance
paramedic	100%	
feel	46%	
friend	38%	
work	33%	
year	28%	
people	21%	
better	10%	

Figure 22. Thematic summary for General Analysis: Gender – Female.

Word-Like	Count	Relevance
year	13	100%
patient	10	77%
feel	10	77%
work	10	77%
people	10	77%
paramedic	9	69%
brother	9	69%
injury	9	69%
time	9	69%
thought	9	69%
better	9	69%
friend	8	62%
talk	8	62%
course	7	54%

Figure 23. Concept relevance for General Analysis: Gender – Male.

The general analysis of the full interview data for students in the group ‘Male’ revealed the main theme is that of ‘paramedic’, which also includes the concepts ‘injury’, ‘patient’ and ‘brother’. The next most significant theme is ‘feel’ which includes the concept of ‘time’. These are removed from the principal theme and its concepts. The concept of ‘feel’ is also directly related to the concept of ‘people’, which is also connected to ‘talk’ and ‘friend’.

General analyses by 'Prior Tertiary Study'.

Group: No Prior Study.

Concepts manually merged: Try and trying.

Concepts manually removed: Doing, down, guess, probably, suppose, sure, things, try, wrist, year.

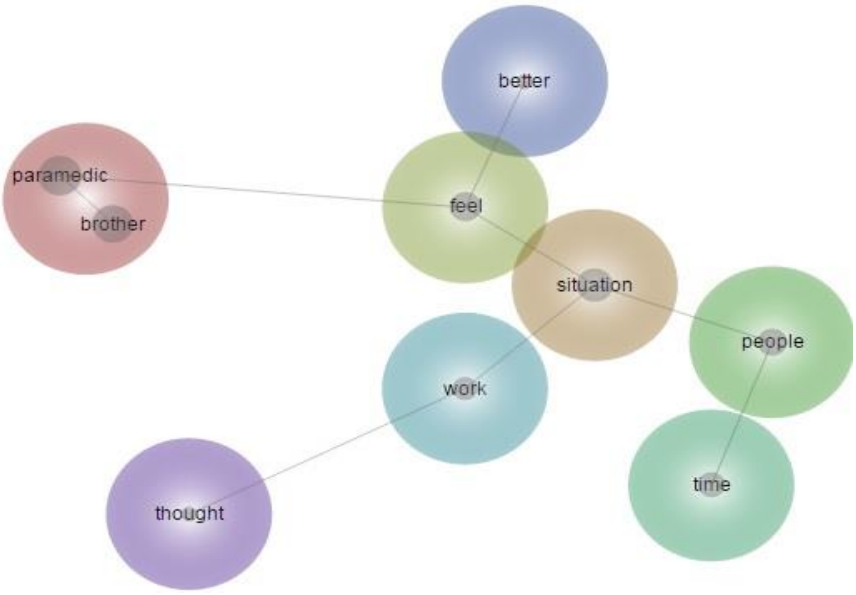
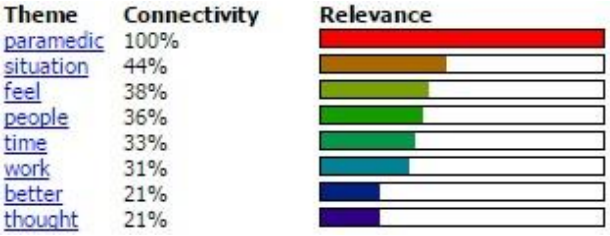
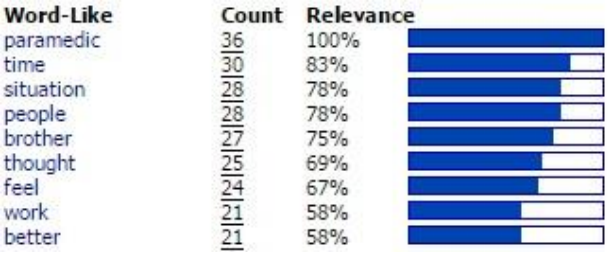


Figure 24. Concept map for General Analysis: Prior Tertiary Study – No Prior Study.



Theme	Connectivity	Relevance
paramedic	100%	
situation	44%	
feel	38%	
people	36%	
time	33%	
work	31%	
better	21%	
thought	21%	

Figure 25. Thematic summary for General Analysis: Prior Tertiary Study – No Prior Study.



Word-Like	Count	Relevance
paramedic	36	100%
time	30	83%
situation	28	78%
people	28	78%
brother	27	75%
thought	25	69%
feel	24	67%
work	21	58%
better	21	58%

Figure 26. Concept relevance for General Analysis: Prior Tertiary Study – No Prior Study.

The general analysis of the full interview data for students in the group 'No Prior Study' revealed the main theme is that of 'paramedic', which also includes the concept 'brother'. The next most significant themes are 'situation', 'feel' and 'people' however all themes appear very separate with very little connectivity to each other.

Group: Prior Study.

Concepts manually merged: Thinking and thought.

Concepts manually removed: Doing, down, guess, probably, seemed, stuff, things.

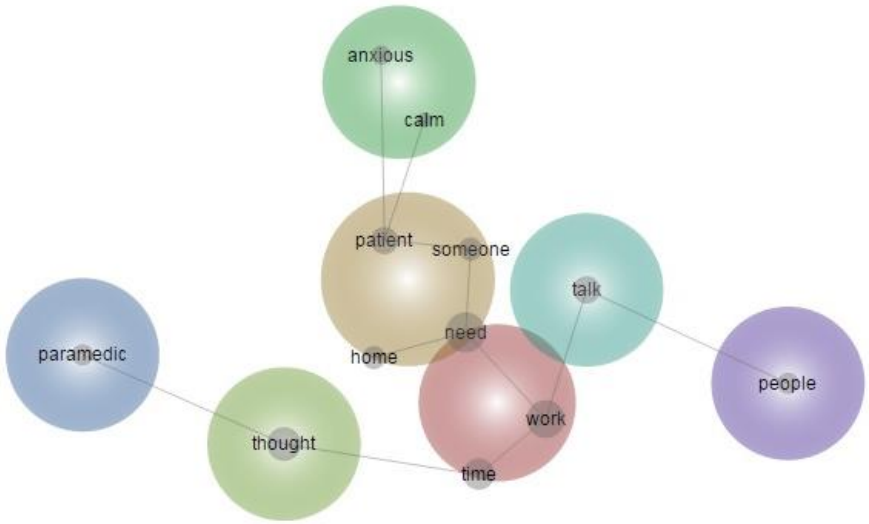


Figure 27. Concept map for General Analysis: Prior Tertiary Study – Prior Study.

Theme	Connectivity	Relevance
need	100%	
patient	63%	
thought	30%	
anxious	26%	
talk	24%	
people	17%	
paramedic	17%	

Figure 28. Thematic summary for General Analysis: Prior Tertiary Study – Prior Study.

Word-Like	Count	Relevance
thought	24	100%
paramedic	20	83%
people	20	83%
work	19	79%
time	18	75%
anxious	14	58%
need	13	54%
talk	12	50%
patient	12	50%
calm	12	50%
home	10	42%
someone	9	38%

Figure 29. Concept relevance for General Analysis: Prior Tertiary Study – Prior Study.

The general analysis of the full interview data for students in the group ‘Prior study’ revealed the main theme is ‘need’ which is closely connected to the themes of ‘patient’ and ‘talk’. These strong, connected principal themes include the additional concepts of ‘work’ and ‘time’, ‘someone’ and ‘home’, and ‘talk’. There is also a direct relationship between the concept of ‘patient’, ‘anxious’ and ‘calm’.

Interpersonal Reactivity Index (IRI) subscale analyses

The second stage of analyses addressed the subscales of the IRI for themes and concepts. The specific portion of each interview that related to each subscale was extracted from the interview text and analysed for each set of participant groups by Age Group, Course, Gender, and Prior Tertiary Study. The results are reported below. Each analysis is identified by subscale, category and subgroup. The manual adjustments to concept analysis are identified.

IRI Subscale: Empathic Concern

During the interview participants were asked the following questions which provided the data for the Empathic Concern subscale analyses.

> Okay, can you give me a quick summary of what's happening in the clip and who the various people are?
> Can you recall the condition that Josh, the patient, suffers from?
> How did you know this?
> How do you think that Josh is feeling at the minute?

Empathic Concern analyses by Age Group.

Group: Age - Over 21.

Concepts manually merged: Injured and injury.

Concepts manually removed: Called, doing, josh, obviously, probably, seemed, sure, wrist.

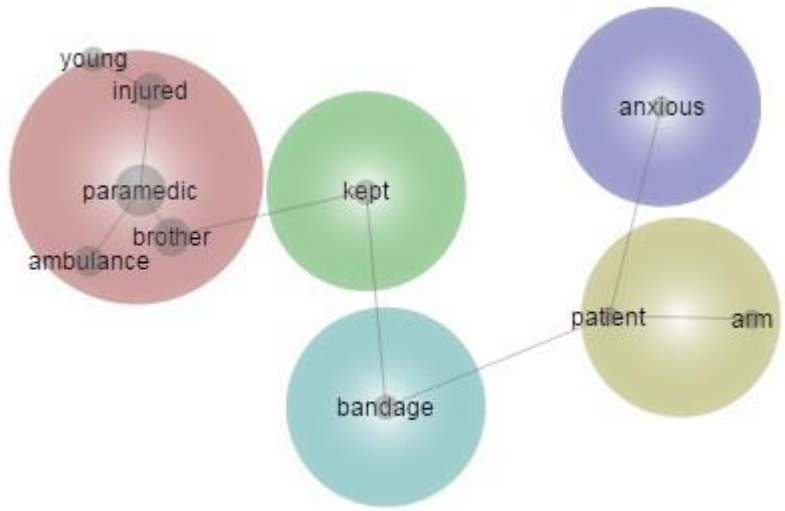


Figure 30. Concept map for Empathic Concern: Age – Over 21.

Theme	Connectivity	Relevance
paramedic	100%	
patient	12%	
kept	11%	
bandage	11%	
anxious	08%	

Figure 31. Thematic summary for Empathic Concern: Age – Over 21.

Word-Like	Count	Relevance
paramedic	13	100%
injured	9	69%
brother	8	62%
bandage	8	62%
anxious	7	54%
ambulance	6	46%
young	5	38%
arm	5	38%
kept	3	23%
patient	3	23%

Figure 32. Concept relevance for Empathic Concern: Age – Over 21.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Age – Over 21’ the principal theme is ‘paramedic’. There is a large drop in connectivity to the next most important theme, ‘patient’. There is a direct link between the concepts ‘patient’ and ‘anxious’.

Group: Age - Under 21.

Concepts manually merged: Brother and brothers, injured and injury.

Concepts manually removed: Called, doing, josh, seemed, sure, things, trying, wrist.

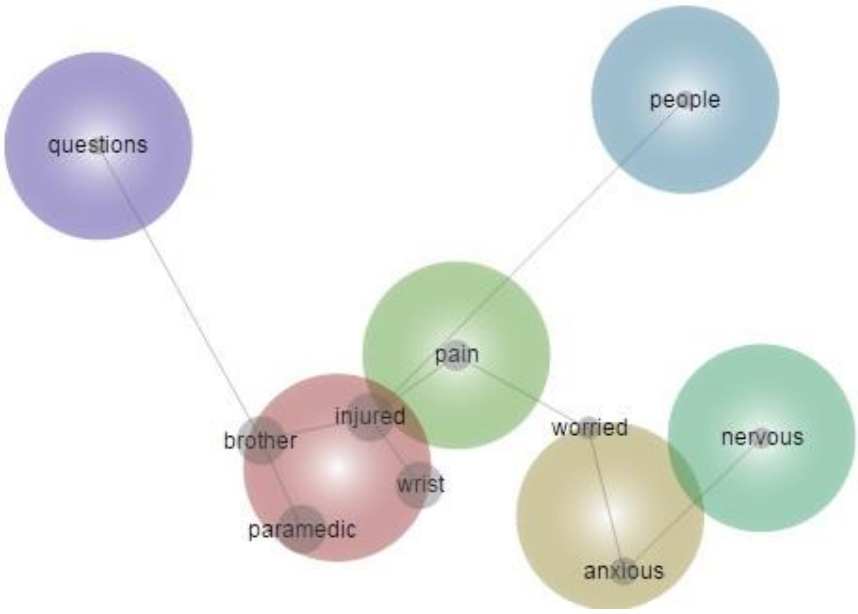


Figure 33. Concept map for Empathic Concern: Age – Under 21.

Theme	Connectivity	Relevance
brother	100%	
anxious	17%	
pain	12%	
nervous	05%	
people	03%	
questions	03%	

Figure 34. Thematic summary for Empathic Concern: Age – Under 21.

Word-Like	Count	Relevance
paramedic	32	100%
wrist	32	100%
brother	31	97%
injured	25	78%
anxious	16	50%
pain	13	41%
worried	9	28%
nervous	9	28%
questions	8	25%
people	7	22%

Figure 35. Concept relevance for Empathic Concern: Age – Under 21.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Age – Under 21’ the principal theme is ‘brother’ while the next most significant theme is ‘anxious’, which includes the additional concept ‘worried’ and is closely related to the theme and concept ‘nervous’. The theme ‘people’ is set apart from the majority of other themes.

In summary, for the group ‘Over 21’, ‘paramedic’ is the main theme, in contrast with the group ‘Under 21’ where the principal theme is ‘brother’. The secondary themes are respectively ‘patient’ and ‘anxious’.

Empathic Concern analyses by Course.

Group: Course – Medicine.

Concepts manually merged: Nil.

Concepts manually removed: Doing, probably, seemed, stuff, sure, things, trying, wrist.

Figure 36. Concept map for Empathic Concern: Course – Medicine.

Theme	Connectivity	Relevance
feeling	100%	
talking	47%	
brother	28%	
game	02%	

Figure 37. Thematic summary for Empathic Concern: Course – Medicine.

Word-Like	Count	Relevance
anxious	10	100%
worried	7	70%
brother	5	50%
comfortable	5	50%
feeling	4	40%
talking	4	40%
paramedic	4	40%
stressed	4	40%
pain	4	40%
probably	3	30%
injury	3	30%
game	2	20%

Figure 38. Concept relevance for Empathic Concern: Course – Medicine.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘feeling’. The subsequent two principal themes are ‘talking’ and ‘brother’. There is a high level of connectivity between the concept ‘feeling’ and additional concepts within that theme.

Group: Course – Paramedicine.

Concepts manually merged: Nil.

Concepts manually removed: Called, doing, josh, obviously, probably, seemed, sure, wrist.

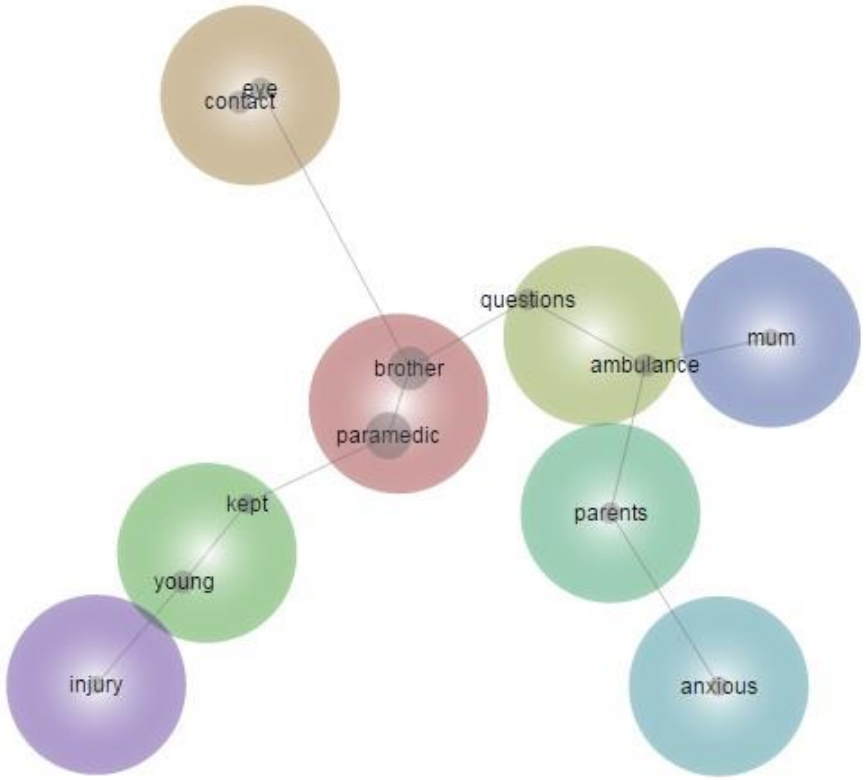


Figure 39. Concept map for Empathic Concern: Course – Paramedicine.

Theme	Connectivity	Relevance
paramedic	100%	
eye	29%	
ambulance	26%	
young	24%	
parents	12%	
anxious	09%	
mum	06%	
injury	06%	

Figure 40. Thematic summary for Empathic Concern: Course – Paramedicine.

Word-Like	Count	Relevance
paramedic	14	100%
brother	12	86%
young	4	29%
anxious	4	29%
eye	3	21%
contact	3	21%
ambulance	3	21%
questions	3	21%
parents	2	14%
kept	2	14%
injury	2	14%
mum	2	14%

Figure 41. Concept relevance for Empathic Concern: Course – Paramedicine.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group 'Course – Paramedicine' the principal theme is 'paramedic'. The five most important themes from this group are not of an emotional/affective nature. This is also reflected in the concept ranking with 'anxious' receiving a 29% relevance. This is the only emotional/affective concept reported for this group.

Group: Course – Pharmacy.

Concepts manually merged: Paramedic and paramedics.

Concepts manually removed: Called, doing, look, probably, seemed, sure, wrist.

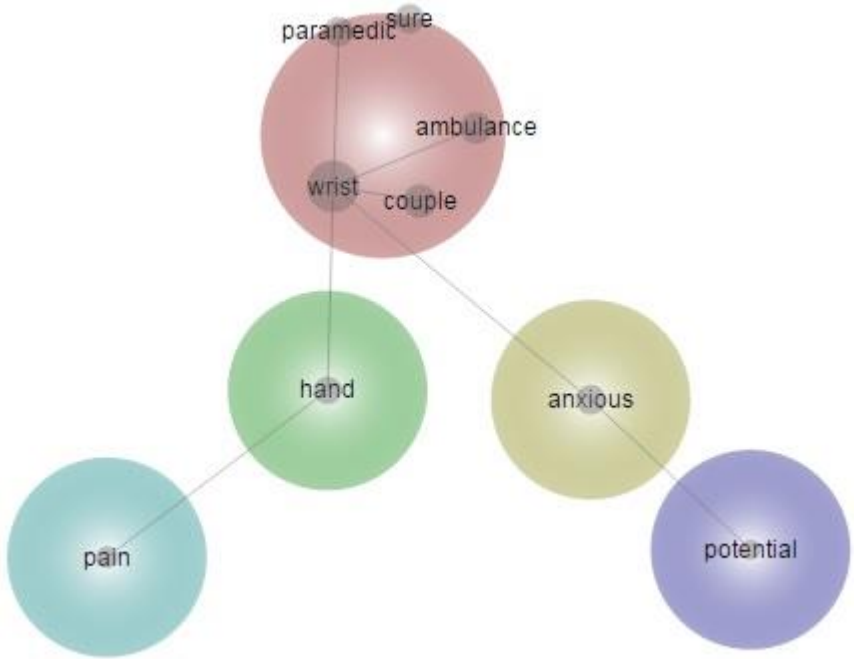


Figure 42. Concept map for Empathic Concern: Course – Pharmacy.

Theme	Connectivity	Relevance
wrist	100%	
anxious	14%	
hand	11%	
pain	05%	
potential	02%	

Figure 43. Thematic summary for Empathic Concern: Course – Pharmacy

Word-Like	Count	Relevance
wrist	11	100%
anxious	4	36%
couple	3	27%
ambulance	3	27%
paramedic	3	27%
sure	3	27%
hand	2	18%
pain	2	18%
potential	2	18%

Figure 44. Concept relevance for Empathic Concern: Course – Pharmacy.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Course – Pharmacy’ the principal theme is ‘wrist’. This occurs despite the word ‘wrist’ being manually removed from the analysis. The secondary theme is ‘anxious’ which is directly connected to the concepts ‘wrist’ and ‘potential’. The thematic and conceptual results for this group are likely to be influenced by the very small participation rate in the qualitative data collection for this course.

In summary, for the group ‘Course’, the analyses reveal strong differences between the subgroups ‘medicine’, ‘paramedicine’ and ‘pharmacy’. Analysis for the group ‘medicine’ places ‘feeling’ as the principal theme, where results for ‘paramedicine’ and ‘pharmacy’ show ‘paramedic’ and ‘wrist’ as the strongest themes. The group ‘paramedicine’ was the only group not to report an emotional/affective theme in the four most strongly rated themes and the three most relevant concepts.

Empathic Concern analyses by Gender.

Group: Gender – Female.

Concepts manually merged: Brother and brothers.

Concepts manually removed: Called, doing, josh, probably, seemed, sure, things, wrist.

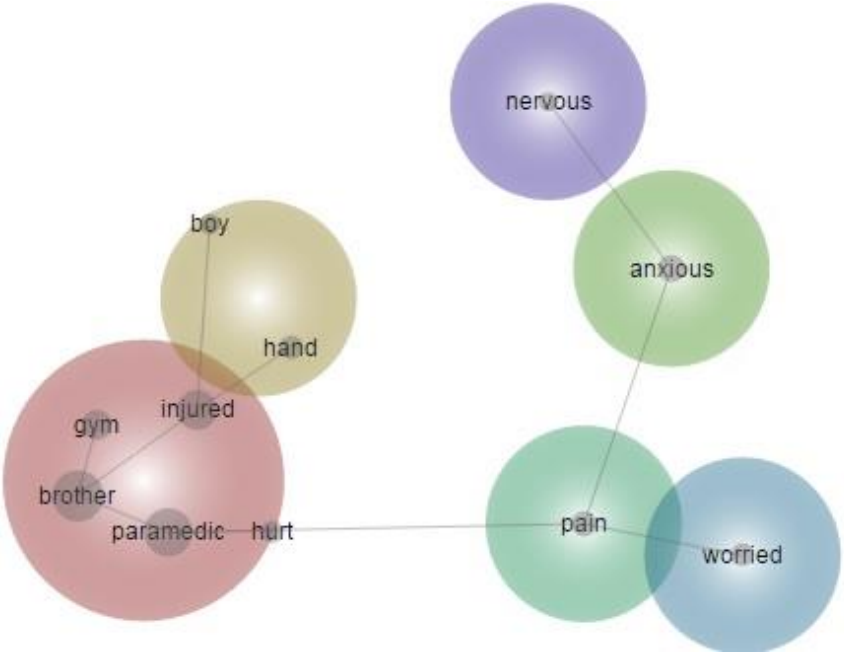


Figure 45. Concept map for Empathic Concern: Gender – Female.

Theme	Connectivity	Relevance
brother	100%	
hand	12%	
anxious	10%	
pain	09%	
worried	07%	
nervous	04%	

Figure 46. Thematic summary for Empathic Concern: Gender – Female.

Word-Like	Count	Relevance
brother	36	100%
paramedic	34	94%
anxious	19	53%
injured	17	47%
pain	11	31%
worried	11	31%
gym	9	25%
hurt	7	19%
boy	6	17%
nervous	6	17%
hand	5	14%

Figure 47. Concept relevance for Empathic Concern: Gender – Female.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Gender – Female’ the principal theme is ‘brother’ and is also the highest ranked concept. The subsequent themes ‘anxious’, ‘pain’, ‘worried’ and

‘nervous’ are all visually separated from the themes ‘brother’ and ‘hand’. With the concept ‘worried’ ranking third after ‘paramedic’ and ‘brother’. Half the identified themes for the group ‘gender-female’ are emotional/affective in nature.

Group: Gender – Male.

Concepts manually merged: Nil.

Concepts manually removed: Doing, guess, happened, josh, sure, things, thought, wrist.

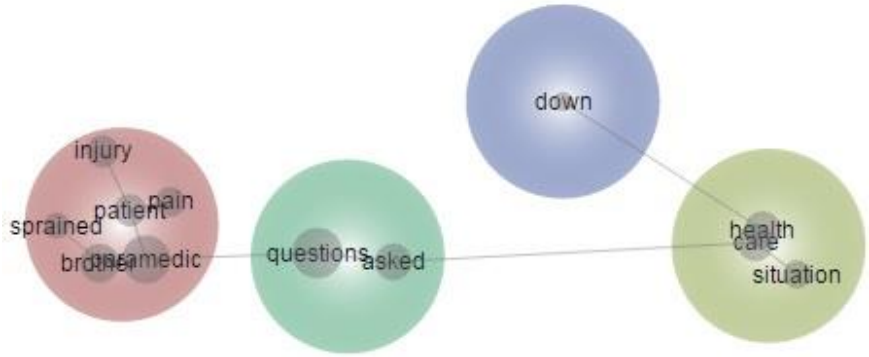


Figure 48. Concept map for Empathic Concern: Gender – Male.

Theme	Connectivity	Relevance
paramedic	100%	
care	48%	
questions	45%	
down	06%	

Figure 49. Thematic summary for Empathic Concern: Gender – Male.

Word-Like	Count	Relevance
questions	10	100%
paramedic	9	90%
brother	8	80%
injury	7	70%
care	6	60%
health	6	60%
patient	6	60%
situation	6	60%
asked	5	50%
down	5	50%
pain	4	40%
sprained	4	40%

Figure 50. Concept relevance for Empathic Concern: Gender – Male.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Gender – Male’ the principal theme is ‘paramedic’ and is also the second ranked concept. The theme with the second highest connectivity is ‘care’ which is visually connected to the concept ‘health’ and directly related to the concept

‘asked’ that sits within the theme ‘questions’. The relationships surrounding ‘care’ indicate that this theme and concept is related to healthcare provision in a professional sense. The group ‘male’ did not display emotional/affective themes or concepts.

In summary, for the group ‘gender’, the analyses reveal a significant difference in the presence of emotional/affective themes. The group ‘gender-female’ presented six themes, half of which were of an emotional/affective nature compared with the group ‘gender-male’ that did not present any emotional/affective themes or concepts.

Empathic Concern analyses by Prior tertiary study.

Group: Prior tertiary study – No prior study.

Concepts manually merged: Brother and brothers, injure and injured.

Concepts manually removed: Called, doing, josh, probably, seemed, sure, things, wrist.

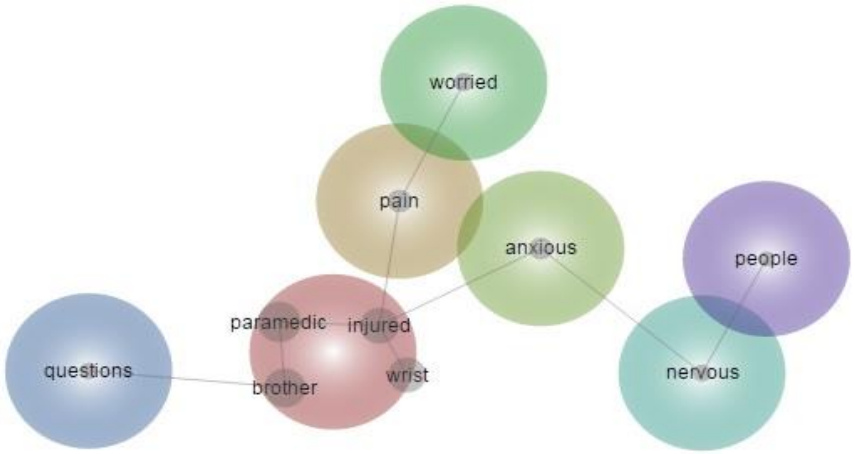


Figure 51. Concept map for Empathic Concern: Prior tertiary study – No prior study.

Theme	Connectivity	Relevance
paramedic	100%	
pain	10%	
anxious	09%	
worried	06%	
nervous	05%	
questions	04%	
people	03%	

Figure 52. Thematic summary for Empathic Concern: Prior tertiary study – No prior study.

Word-Like	Count	Relevance
paramedic	39	100%
brother	35	90%
wrist	33	85%
injured	26	67%
anxious	16	41%
pain	13	33%
worried	10	26%
nervous	9	23%
questions	9	23%
people	7	18%

Figure 53. Concept relevance for Empathic Concern: Prior tertiary study – No prior study.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Prior Tertiary Study – No prior study’ the principal theme is ‘paramedic’ and is also the most highly ranked concept. There is a visible separation in the concept map between emotional/affective themes and the work-related concepts encompassed by the ‘paramedic’ theme. The intersection of these two groups of themes is provided through the concept ‘injured’.

Group: Prior tertiary study – Prior study.

Concepts manually merged: Injured and injury.

Concepts manually removed: Called, doing, josh, kept, obviously, seemed, wrist.

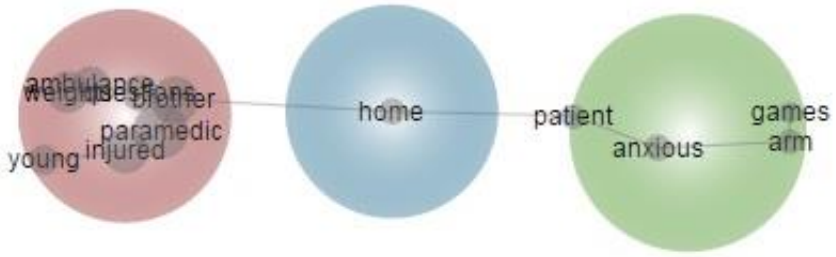


Figure 54. Concept map for Empathic Concern: Prior tertiary study – Prior study.

Theme	Connectivity	Relevance
paramedic	100%	
anxious	16%	
home	05%	

Figure 55. Thematic summary for Empathic Concern: Prior tertiary study – Prior study.

Word-Like	Count	Relevance
paramedic	11	100%
brother	8	73%
injured	8	73%
anxious	7	64%
weights	6	55%
young	5	45%
arm	5	45%
ambulance	4	36%
questions	3	27%
patient	3	27%
games	3	27%
home	2	18%

Figure 56. Concept relevance for Empathic Concern: Prior tertiary study – Prior study.

The analysis of the specific interview data for the IRI subscale of Empathic Concern revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme is ‘paramedic’. There is a striking linear relationship between the three identified themes with the theme and concept of ‘home’ providing the central point of the concept map.

In summary, the thematic structure for the group ‘Prior tertiary study – No prior study’ provides significant separation of the themes and concepts which is strongly contrasted with the structure for the group ‘Prior tertiary study – Prior study’ which displays a strong linear relationship of themes and concepts centred on ‘home’.

IRI Subscale: Fantasy

During the interview participants were asked the following questions which provided the data for the Fantasy subscale analyses.

> Can you imagine, a situation…not necessarily a health care one, although it can be…where you might feel the same way as the health professional? *[depicted in the digital footage]*
> Could you describe it for me please?

Fantasy analyses by Age.

Group: Age - Over 21.

Concepts manually merged: Talk and tell.

Concepts manually removed: Guess, hours, obviously, take, things.

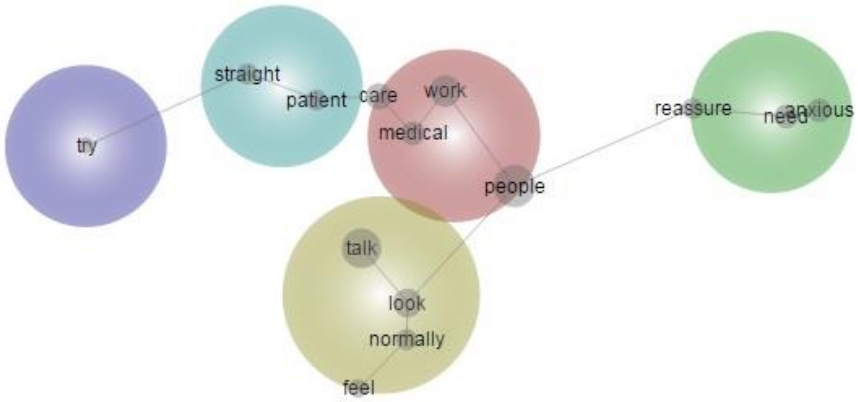


Figure 57. Concept map for Fantasy: Age – Over 21.

Theme	Connectivity	Relevance
people	100%	
talk	81%	
need	45%	
patient	26%	
try	06%	

Figure 58. Thematic summary for Fantasy: Age – Over 21.

Word-Like	Count	Relevance
talk	8	100%
work	8	100%
people	6	75%
look	5	62%
anxious	5	62%
try	4	50%
care	3	38%
need	3	38%
medical	3	38%
normally	3	38%
patient	3	38%
reassure	3	38%
straight	3	38%
feel	3	38%

Figure 59. Concept relevance for Fantasy: Age – Over 21.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group 'Age – Over 21' the principal theme is 'people'. The theme 'talk' is also highly connected and also is the most relevant concept. There is also a direct connection from the theme 'talk' and the related concept of 'people' to the concept of 'reassure'.

Group: Age - Under 21.

Concepts manually merged: Feel and feeling, friend and friends, talk and tell, time and times, try and trying.

Concepts manually removed: Sit, sure, things, try.

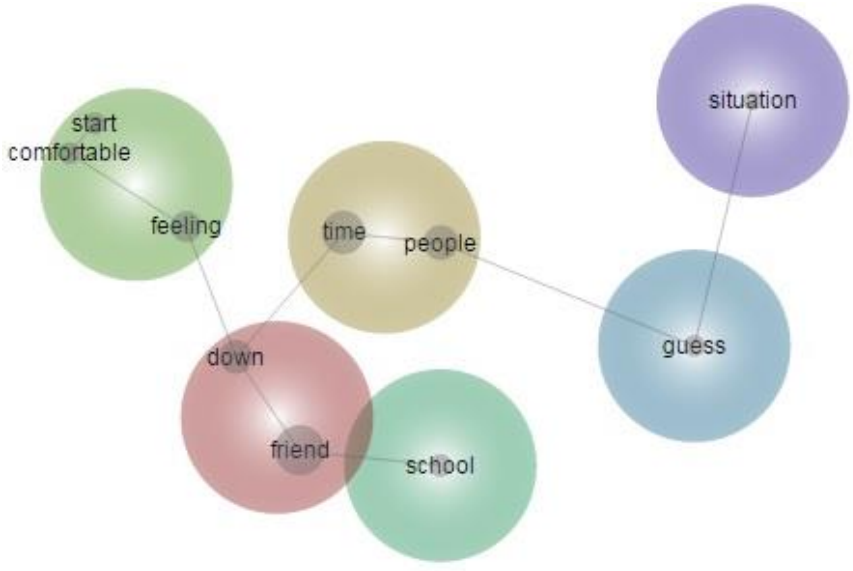


Figure 60. Concept map for Fantasy: Age – Under 21.

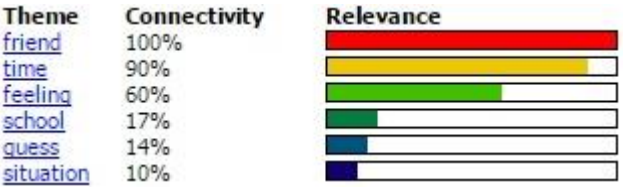


Figure 61. Thematic summary for Fantasy: Age – Under 21.

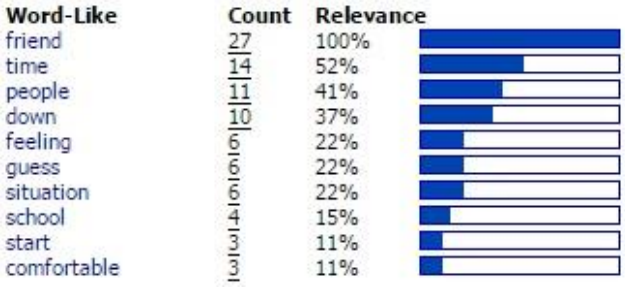


Figure 62. Concept relevance for Fantasy: Age – Under 21.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Age – Under 21’ the principal theme and concept is ‘friend’. The themes ‘time’ and ‘feeling’ also feature strongly, however there is a striking visual disconnection between the majority of themes in the concept map. Other relevant concepts include ‘time’ and ‘people’.

In summary, the thematic structure for the group ‘Age – Over 21’ displays greater connectivity and relationship between themes and concepts than can been seen in the concept map for the group “Age - Under 21’. Both groups display strong leanings towards interpersonal themes and concepts.

Fantasy analyses by Course.

Group: Course - Medicine.

Concepts manually merged: Feel and feeling, talk and tell, try and trying.

Concepts manually removed: Guess, sure, take, things, try, year.

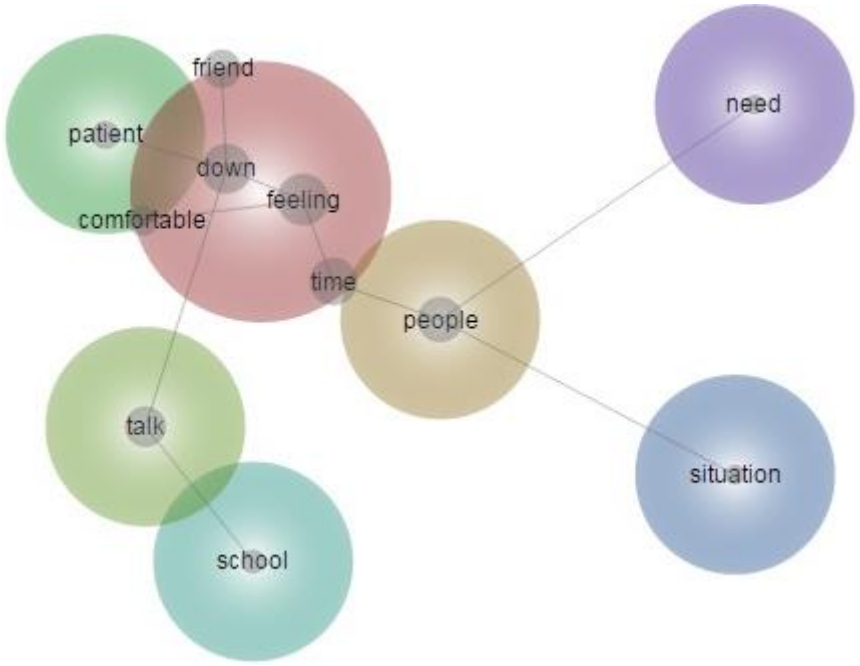


Figure 63. Concept map for Fantasy: Course – Medicine.

Theme	Connectivity	Relevance
feeling	100%	
people	21%	
talk	18%	
patient	09%	
school	06%	
situation	03%	
need	03%	

Figure 64. Thematic summary for Fantasy: Course – Medicine.

Word-Like	Count	Relevance
talk	11	100%
down	10	91%
people	9	82%
feeling	8	73%
time	8	73%
friend	8	73%
situation	6	55%
comfortable	5	45%
patient	4	36%
need	4	36%
school	3	27%

Figure 65. Concept relevance for Fantasy: Course – Medicine.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘feeling’ which also overlaps with the themes ‘people’ and ‘patient’. This group displays strong relevance for interpersonal skills in both the themes and concepts revealed.

Group: Course - Paramedicine.

Concepts manually merged: Talk and talking, talk and tell.

Concepts manually removed: Hours, look, normally, obviously, stuff, things.

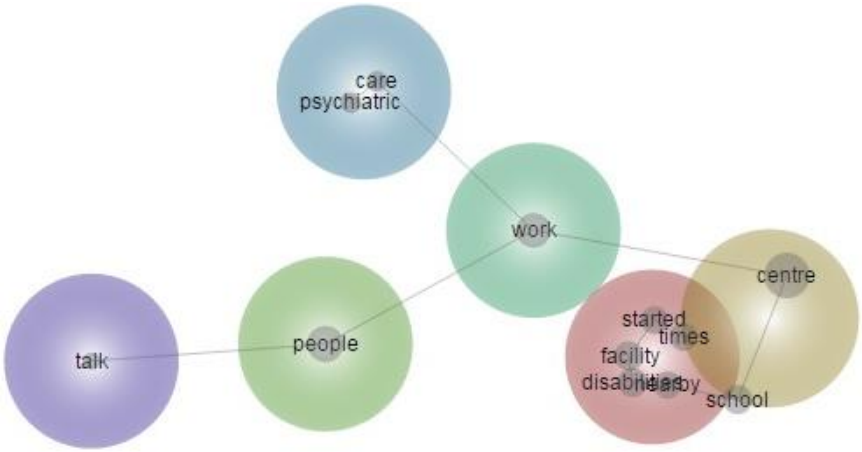


Figure 66. Concept map for Fantasy: Course – Paramedicine.

Theme	Connectivity	Relevance
disabilities	100%	
centre	62%	
people	30%	
work	28%	
care	21%	
talk	06%	

Figure 67. Thematic summary for Fantasy: Course – Paramedicine.

Word-Like	Count	Relevance
centre	10	100%
talk	9	90%
people	6	60%
work	6	60%
school	3	30%
disabilities	2	20%
facility	2	20%
times	2	20%
started	2	20%
nearby	2	20%
care	2	20%
psychiatric	2	20%

Figure 68. Concept relevance for Fantasy: Course – Paramedicine.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Course – Paramedicine’ the principal theme is ‘disabilities’. The themes of ‘talk’ and ‘people’ are visually quite separated from the main cluster of concepts that are derived from the themes ‘disability’ and ‘centre’.

Group: Course - Pharmacy.

Concepts manually merged: Quiet and quieter, quiet and quietly.

Concepts manually removed: Down, look, sit, somewhere, things.

Figure 69. Concept map for Fantasy: Course – Pharmacy.

Theme	Connectivity	Relevance
things	100%	
friends	100%	
talk	67%	

Figure 70. Thematic summary for Fantasy: Course – Pharmacy.

Word-Like	Count	Relevance
talk	4	100%
things	2	50%
friends	2	50%

Figure 71. Concept relevance for Fantasy: Course – Pharmacy.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Course – Pharmacy’ the themes ‘things’ and ‘friends’ are most significant, however the main concept to be revealed is ‘talk’ which was not directly related to the theme ‘friends’. The thematic and conceptual results for this group are likely to be influenced by the very small participation rate for this course.

In summary, the group “Course – Medicine’ revealed strong responses in themes and concepts relating to interpersonal skills, particularly around the themes ‘feeling’, ‘people’ and

‘patient’ where similar themes and concepts for the group ‘Course – Paramedicine’ are placed quite separately from the main theme of ‘disabilities’. Despite the small number of themes and concepts derived for the group ‘Course – Pharmacy’, two of the three themes are also of an interpersonal nature, being ‘friends’ and ‘talk’.

Fantasy analyses by Gender.

Group: Gender - Female.

Concepts manually merged: Talk and talking, try and trying, talk and tell.

Concepts manually removed: Coming, down, guess, look, probably, things, try.

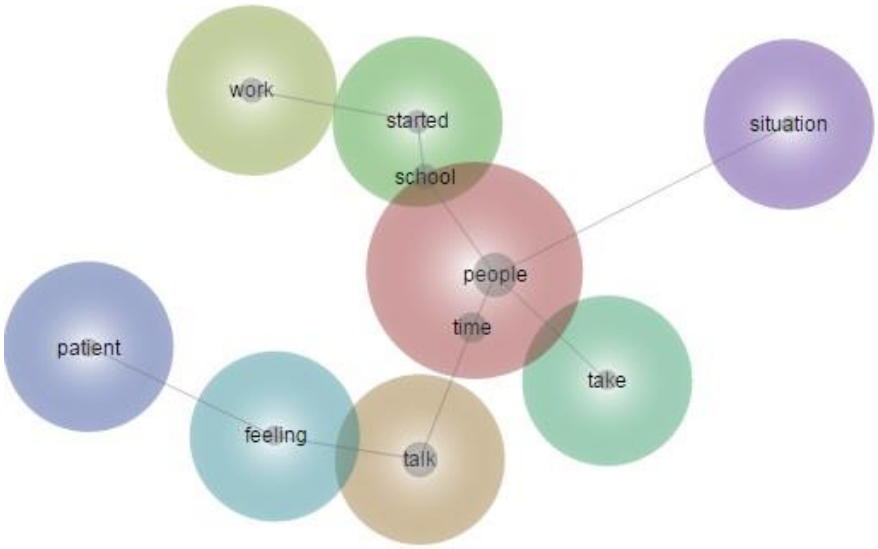


Figure 72. Concept map for Fantasy: Gender – Female.

Theme	Connectivity	Relevance
people	100%	
talk	37%	
work	20%	
started	17%	
take	11%	
feeling	11%	
patient	09%	
situation	06%	

Figure 73. Thematic summary for Fantasy: Gender – Female.

Word-Like	Count	Relevance
talk	20	100%
people	12	60%
work	10	50%
time	8	40%
situation	6	30%
school	5	25%
started	5	25%
feeling	4	20%
take	4	20%
patient	4	20%

Figure 74. Concept relevance for Fantasy: Gender – Female.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Gender – Female’ the two most connected themes are ‘people’ and

‘talk’. These are also the two most relevant concepts. The theme ‘people’ is also closely related to the theme ‘feeling’.

Group: Gender - Male.

Concepts manually merged: Expose and exposure, talk and tell.

Concepts manually removed: Down, sure, things, try, year.

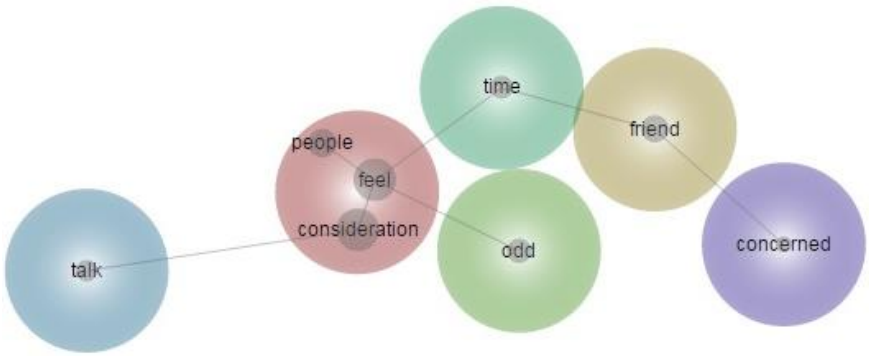
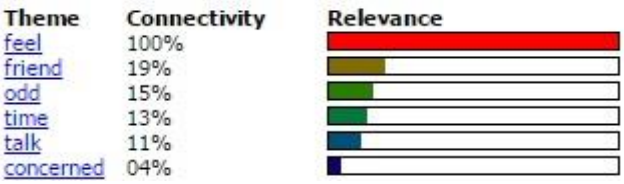
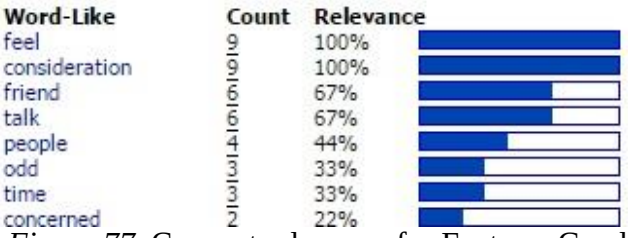


Figure 75. Concept map for Fantasy: Gender – Male.



Theme	Connectivity	Relevance
feel	100%	
friend	19%	
odd	15%	
time	13%	
talk	11%	
concerned	04%	

Figure 76. Thematic summary for Fantasy: Gender – Male.



Word-Like	Count	Relevance
feel	9	100%
consideration	9	100%
friend	6	67%
talk	6	67%
people	4	44%
odd	3	33%
time	3	33%
concerned	2	22%

Figure 77. Concept relevance for Fantasy: Gender – Male.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Gender – Male’ the theme and concept ‘feel’ rated most strongly. This concept is also directly related to the concept ‘people’. There is also a close relationship between the themes and concepts of ‘time’ and ‘friend’.

In summary, both the groups ‘Gender – Female’ and ‘Gender – Male’ highlight themes and concepts of an interpersonal nature.

Fantasy analyses by Prior Tertiary Study.

Group: Prior Tertiary Study – No prior study.

Concepts manually merged: Feel and feeling, friend and friends, talk and tell, time and times, try and trying.

Concepts manually removed: Down, guess, sit, start, things, try.

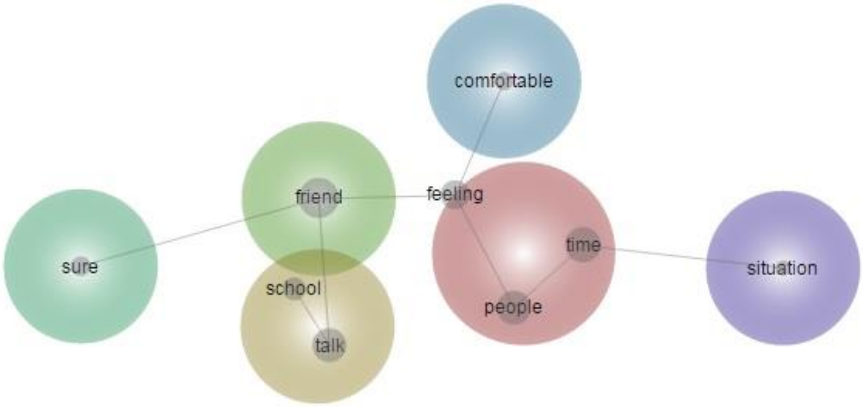


Figure 78. Concept map for Fantasy: Prior tertiary study – No prior study.

Theme	Connectivity	Relevance
time	100%	
talk	52%	
friend	45%	
sure	12%	
comfortable	10%	
situation	05%	

Figure 79. Thematic summary for Fantasy: Prior tertiary study – No prior study.

Word-Like	Count	Relevance
friend	16	100%
time	14	88%
talk	14	88%
people	11	69%
sure	7	44%
feeling	6	38%
situation	6	38%
school	4	25%
comfortable	3	19%

Figure 80. Concept relevance for Fantasy: Prior tertiary study – No prior study.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Prior Tertiary Study – No prior study’ the strongest themes are ‘time’, ‘talk’ and ‘friend’. These are also the most relevant concepts. There is a close relationship between the themes ‘talk’ and ‘friend’ but there is no evidence of work-related themes, with ‘school’ being the closest relevant concept, but this appears related to the theme ‘talk’.

Group: Prior Tertiary Study – Prior study.

Concepts manually merged: Talk and tell.

Concepts manually removed: Guess, obviously, take, things, try.

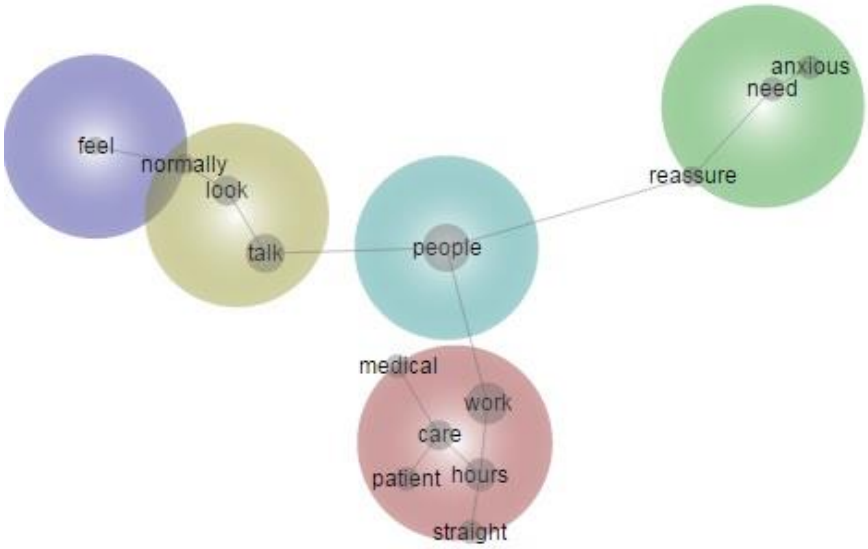


Figure 81. Concept map for Fantasy: Prior tertiary study – Prior study.

Theme	Connectivity	Relevance
work	100%	
talk	51%	
need	34%	
people	32%	
feel	07%	

Figure 82. Thematic summary for Fantasy: Prior tertiary study – Prior study.

Word-Like	Count	Relevance
work	8	100%
talk	7	88%
people	6	75%
look	5	62%
anxious	5	62%
hours	4	50%
care	3	38%
need	3	38%
straight	3	38%
patient	3	38%
medical	3	38%
normally	3	38%
reassure	3	38%
feel	3	38%

Figure 83. Concept relevance for Fantasy: Prior tertiary study – Prior study.

The analysis of the specific interview data for the IRI subscale of Fantasy revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme and concept is ‘work’. Whilst the theme ‘talk’ is the second strongest, it is only indirectly connected to the theme ‘work’ by its relationship to the theme and concept of ‘people’.

In summary, work-related concepts and themes are more strongly represented within the group ‘Prior Tertiary Study – Prior Study’ than in the ‘Prior Tertiary Study – No prior Study’ group. The latter group displays stronger themes that are based in interpersonal relationships, including communication.

IRI Subscale: Personal Distress

During the interview participants were asked the following questions which provided the data for the Personal Distress subscale analyses.

As a general rule, how do you do when you see other people who are really distressed? How well do you cope with this?

Do you have any personal strategies that you use to help you in these kinds of situations? And if you do, could you tell me a little about them?

Personal Distress analyses by Age Group.

Group: Age - Over 21.

Concepts manually merged: Person and someone.

Concepts manually removed: Gets, guess, probably, things, try.

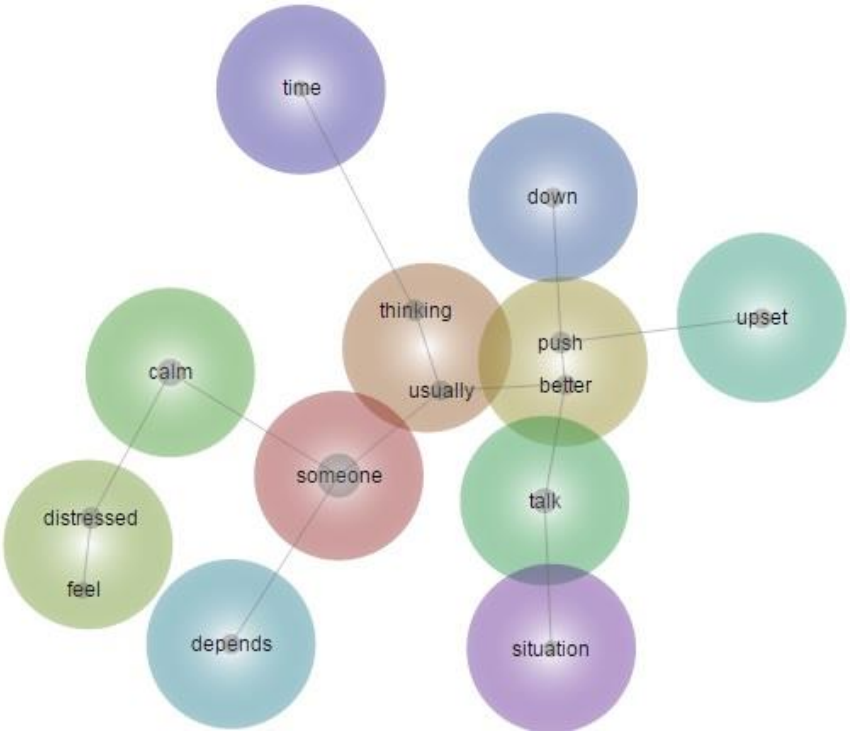


Figure 84. Concept map for Personal Distress: Age – Over 21.

Theme	Connectivity	Relevance
someone	100%	
thinking	65%	
push	65%	
distressed	55%	
calm	50%	
talk	45%	
upset	30%	
down	30%	
depends	30%	
time	20%	
situation	20%	

Figure 85. Thematic summary for Personal Distress: Age – Over 21.

Word-Like	Count	Relevance
someone	13	100%
calm	7	54%
talk	6	46%
upset	6	46%
distressed	5	38%
depends	5	38%
down	5	38%
feel	4	31%
time	4	31%
situation	4	31%
thinking	3	23%
push	2	15%
better	2	15%
usually	2	15%

Figure 86. Concept map for Personal Distress: Age – Over 21.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Age – Over 21’ the principal theme and concept is ‘someone’. This theme is also closely related to the theme ‘thinking’ and linked to the theme and concept ‘calm’.

Group: Age - Under 21.

Concepts manually merged: Feel and feeling, people, person and someone, try and trying.

Concepts manually removed: Obviously, probably, things, try.

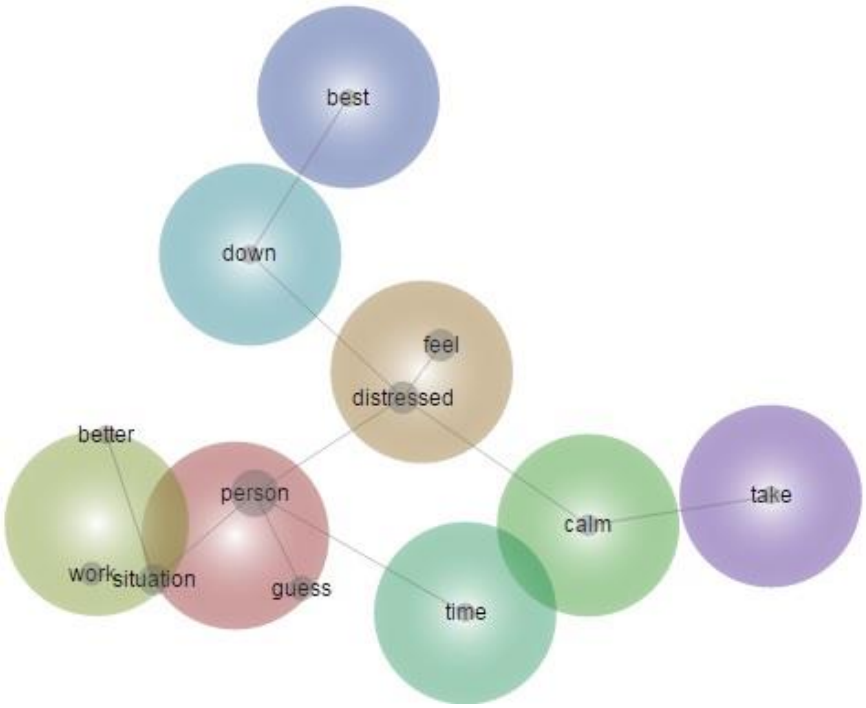


Figure 87. Concept map for Personal Distress: Age – Under 21.

Theme	Connectivity	Relevance
person	100%	
distressed	60%	
work	26%	
calm	13%	
time	09%	
down	09%	
best	08%	
take	08%	

Figure 88. Thematic summary for Personal Distress: Age – Under 21.

Word-Like	Count	Relevance
person	24	100%
feel	19	79%
distressed	11	46%
situation	11	46%
guess	10	42%
calm	9	38%
take	8	33%
work	7	29%
better	7	29%
time	6	25%
best	6	25%
down	5	21%

Figure 89. Concept relevance for Personal Distress: Age – Under 21.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Age – Under 21’ the principal theme and concept is ‘person’. This is closely aligned to the theme ‘work’ and is directly connected to the theme and concept ‘distressed’.

In summary, whilst there two groups reveal a broad number of themes and concepts, the group ‘Age – Over 21’ displays a significant difference to the group ‘Age – Under 21’ through the inclusion of the theme and concept ‘thinking’ which also features visually as a central theme on the concept map.

Personal Distress analyses by Course.

Group: Course - Medicine.

Concepts manually merged: Emotionally and emotions, feel and feeling, people and person, try and trying.

Concepts manually removed: Probably, take, things, try.

Figure 90. Concept map for Personal Distress: Course – Medicine.

Theme	Connectivity	Relevance
people	100%	
distressed	80%	
situation	54%	
feel	43%	
guess	34%	
best	34%	
emotions	23%	
calm	20%	

Figure 91. Concept map for Personal Distress: Course – Medicine.

Word-Like	Count	Relevance
feel	16	100%
people	14	88%
distressed	12	75%
guess	12	75%
emotions	11	69%
calm	11	69%
someone	10	62%
situation	9	56%
work	6	38%
upset	5	31%
best	5	31%
down	5	31%

Figure 92. Concept map for Personal Distress: Course – Medicine.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘people’ with the theme ‘distressed’ also showing strong connectivity. The most relevant concept for this group is ‘feel’ which is also a theme and is clustered alongside the themes of ‘distressed’ and ‘people’.

Group: Course - Paramedicine.

Concepts manually merged: Someone and person.

Concepts manually removed: Gets, things, time, try.

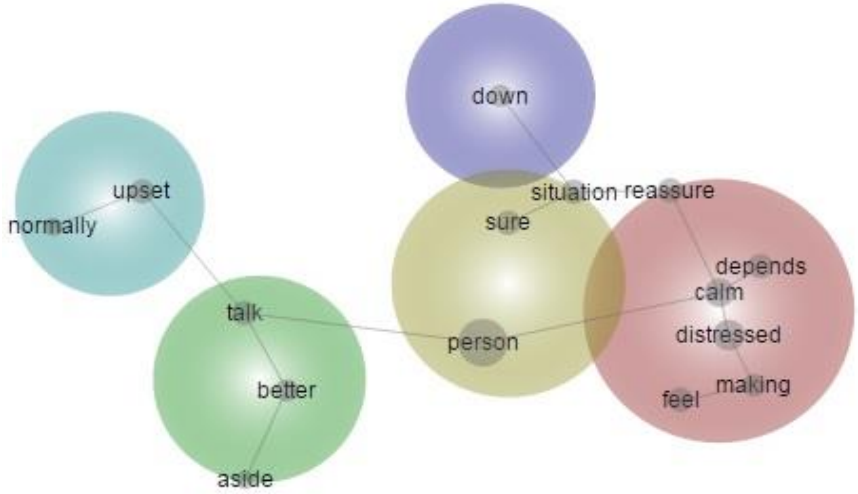


Figure 93. Concept map for Personal Distress: Course – Paramedicine.

Theme	Connectivity	Relevance
distressed	100%	
person	70%	
talk	37%	
upset	24%	
down	13%	

Figure 94. Concept map for Personal Distress: Course – Paramedicine.

Word-Like	Count	Relevance
person	10	100%
upset	5	50%
distressed	4	40%
calm	4	40%
situation	4	40%
feel	4	40%
depends	4	40%
down	4	40%
better	4	40%
sure	3	30%
reassure	3	30%
talk	3	30%
making	3	30%
aside	3	30%
normally	3	30%

Figure 95. Concept map for Personal Distress: Course – Paramedicine.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Course – Paramedicine’ the principal theme is ‘distressed’ with the second highest connectivity being achieved by the theme ‘person’ which is also the most relevant concept. These two main themes merge on the concept map and also encompass a cluster of concepts within each.

Group: Course - Pharmacy.

Concepts manually merged: Listen and listening, try and trying.

Concepts manually removed: Instead, sit, try.

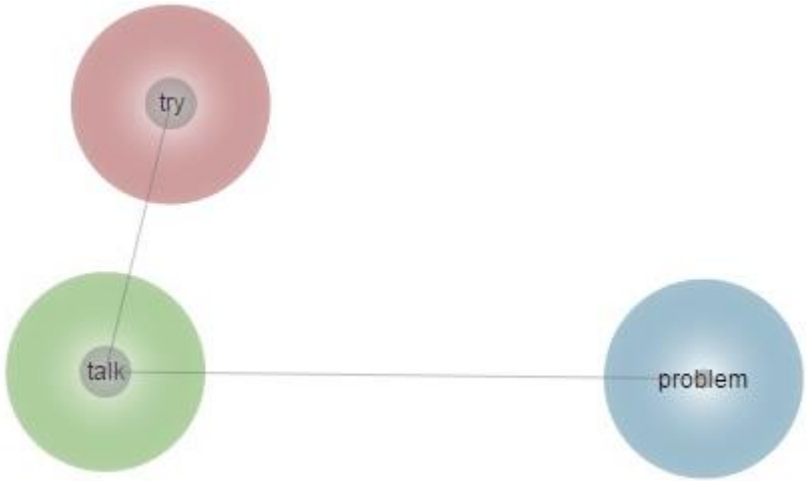


Figure 96. Concept map for Personal Distress: Course – Pharmacy.

Theme	Connectivity	Relevance
try	100%	
talk	100%	
problem	40%	

Figure 97. Thematic summary for Personal Distress: Course – Pharmacy.

Word-Like	Count	Relevance
talk	4	100%
try	4	100%
problem	2	50%

Figure 98. Concept relevance for Personal Distress: Course – Pharmacy.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Course – Pharmacy’ the principal themes are ‘talk’

and ‘try’. The thematic and conceptual results for this group are likely to be influenced by the very small participation rate for this course.

In summary, the groups ‘Course – Medicine’ and ‘Course – Paramedicine’ both feature the themes of ‘people’ and ‘distressed’, however the concept ‘feel’ only appears in the group ‘Course – Medicine’ and not the other two course groupings. For both ‘Course – Medicine’ and ‘Course – Paramedicine’ the theme people/person is centrally placed in the concept map allowing for greater connectivity with other concepts.

Personal Distress analyses by Gender.

Group: Gender - Female.

Concepts manually merged: People, someone and person, best and better, try and trying.

Concepts manually removed: Guess, obviously probably, take, things, try.

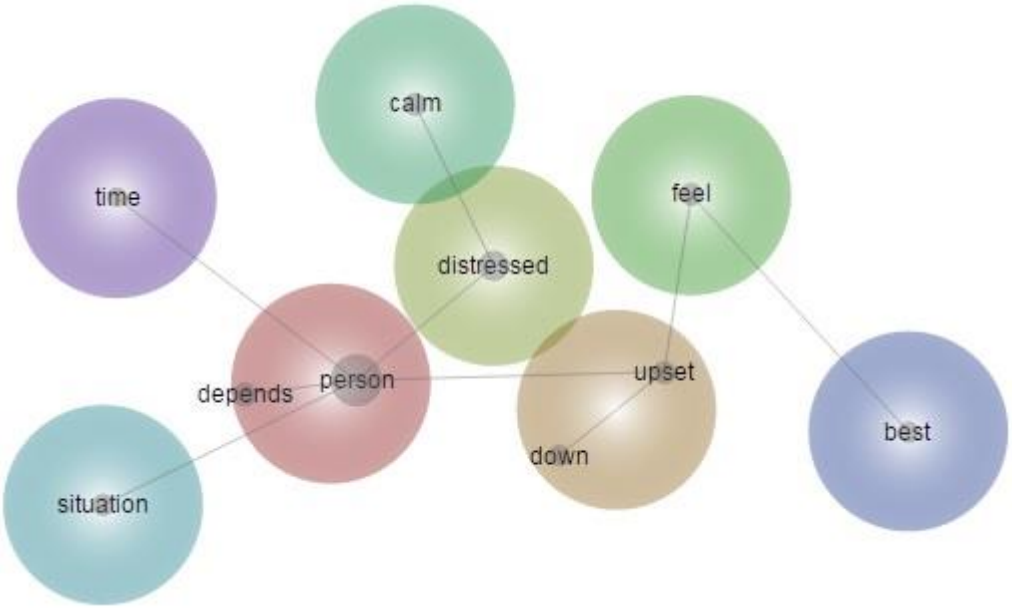


Figure 99. Concept map for Personal Distress: Gender – Female.

Theme	Connectivity	Relevance
person	100%	
upset	39%	
distressed	35%	
feel	21%	
calm	21%	
situation	19%	
best	18%	
time	14%	

Figure 100. Thematic summary for Personal Distress: Gender – Female.

Word-Like	Count	Relevance
person	39	100%
distressed	14	36%
best	14	36%
feel	12	31%
calm	12	31%
upset	11	28%
situation	11	28%
time	10	26%
depends	8	21%
down	8	21%

Figure 101. Concept relevance for Personal Distress: Gender – Female.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Gender – Female’ the principal theme and concept is ‘person’ with the following four most highly connected themes being of an

emotional/affective nature. These concepts are ‘upset’, ‘distressed’, ‘feel’ and ‘calm’ and are also visually positioned centrally in the concept map.

Group: Gender - Male.

Concepts manually merged: Nil.

Concepts manually removed: Down, generally, guess, necessarily, things, try.

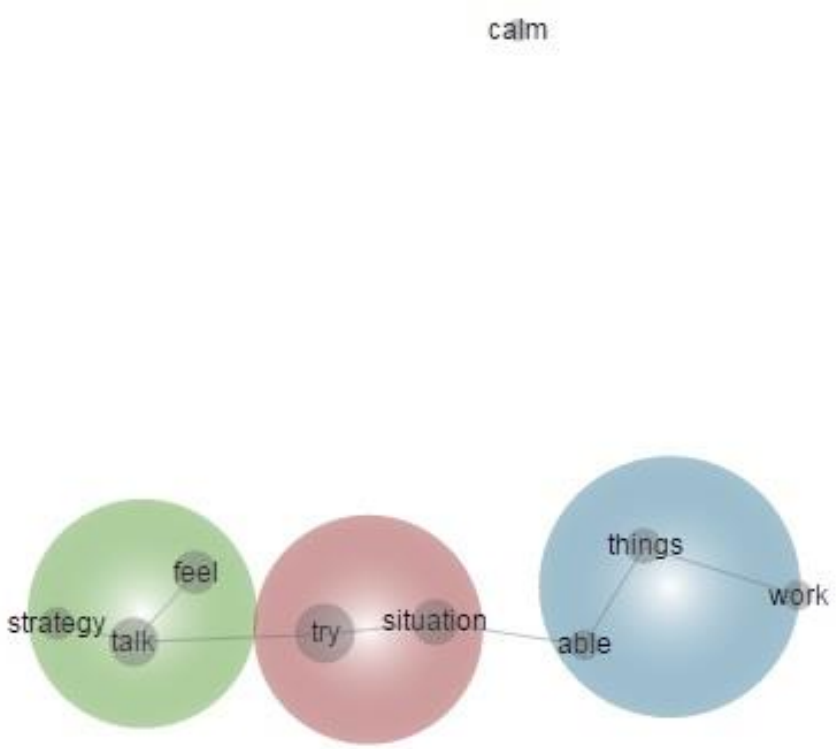


Figure 102. Concept map for Personal Distress: Gender – Male.

Theme	Connectivity	Relevance
try	100%	
talk	96%	
things	48%	

Figure 103. Thematic summary for Personal Distress: Gender – Male.

Word-Like	Count	Relevance
try	8	100%
talk	6	75%
feel	5	62%
situation	4	50%
things	4	50%
calm	4	50%
work	3	38%
strategy	2	25%
able	2	25%

Figure 104. Concept relevance for Personal Distress: Gender – Male.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Gender – Male’ the principal theme is ‘try’ with that of ‘talk’ displaying the second highest connectivity. This theme, along with ‘things’ have been revealed despite the concepts ‘try’ and ‘things’ being manually removed from the analysis. The concept ‘calm’ also is displaying as an ‘outlier’ within the concept map and is set apart from the linear depiction of other themes and concepts.

In summary, the visual depiction of themes and concepts for these two groups is in stark contrast with each other. The group ‘Gender – Female’ reveals multiple separate themes with limited connectivity and includes a number of highly emotional/affective concepts. In contrast, the group ‘Gender – Male’ displays a linear concept map with no emotional/affective themes, although these responses are represented by two concepts.

Personal Distress analyses by Prior Tertiary Study.

Group: Prior Tertiary Study – No Prior Study.

Concepts manually merged: Feel and feeling, people, person and someone, try and trying.

Concepts manually removed: Guess, obviously, probably, things, try.

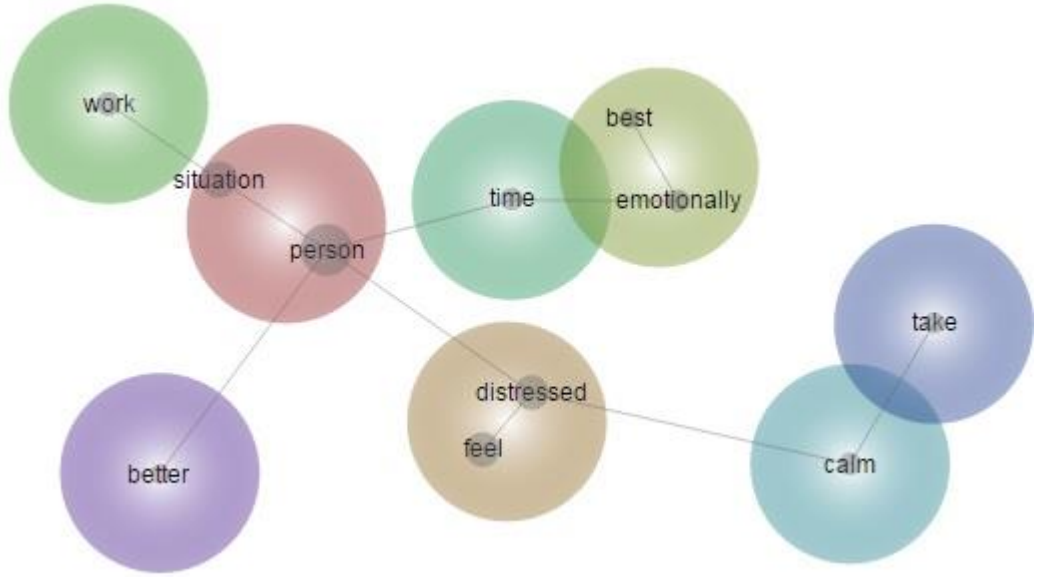


Figure 105. Concept map for Personal Distress: Prior Tertiary Study – No prior study.

Theme	Connectivity	Relevance
person	100%	
feel	70%	
emotionally	25%	
work	18%	
time	15%	
calm	15%	
take	12%	
better	10%	

Figure 106. Thematic summary for Personal Distress: Prior Tertiary Study – No prior study.

Word-Like	Count	Relevance
person	24	100%
feel	19	79%
situation	11	46%
distressed	11	46%
calm	10	42%
take	8	33%
work	7	29%
better	7	29%
time	6	25%
best	6	25%
emotionally	5	21%

Figure 107. Concept relevance for Personal Distress: Prior Tertiary Study – No prior study.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Prior Tertiary Study – No prior study’ the principal theme is ‘person’ with several emotional/affective themes also revealed. Similarly the concept with the highest relevance is also ‘person’ but ‘feel’ also displays high connectivity. There is, however, no direct relationship between the themes ‘feel’ and ‘emotionally’.

Group: Prior Tertiary Study – Prior Study.

Concepts manually merged: Nil.

Concepts manually removed: Gets, probably, try.

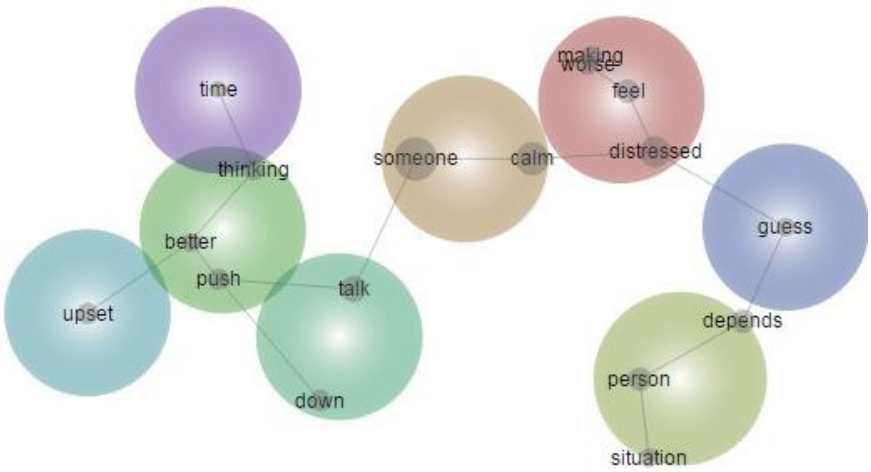
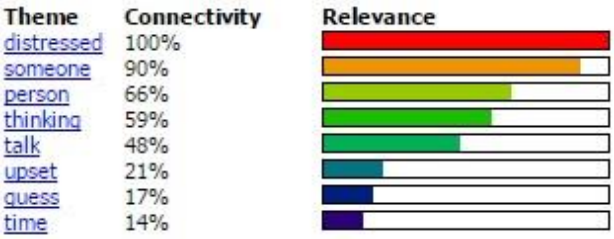
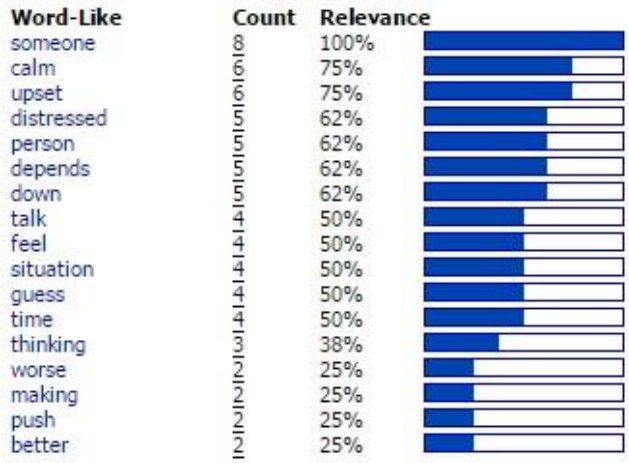


Figure 108. Concept map for Personal Distress: Prior Tertiary Study – Prior study.



Theme	Connectivity	Relevance
distressed	100%	
someone	90%	
person	66%	
thinking	59%	
talk	48%	
upset	21%	
guess	17%	
time	14%	

Figure 109. Thematic summary for Personal Distress: Prior Tertiary Study – Prior study.



Word-Like	Count	Relevance
someone	8	100%
calm	6	75%
upset	6	75%
distressed	5	62%
person	5	62%
depends	5	62%
down	5	62%
talk	4	50%
feel	4	50%
situation	4	50%
guess	4	50%
time	4	50%
thinking	3	38%
worse	2	25%
making	2	25%
push	2	25%
better	2	25%

Figure 110. Concept relevance for Personal Distress: Prior Tertiary Study – Prior study.

The analysis of the specific interview data for the IRI subscale of Personal Distress revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme is ‘distressed’. The greatest conceptual connectivity is displayed for ‘someone’. This concept is also displayed visually adjacent to ‘distressed’ with a link between the two concepts via ‘calm’.

In summary, the group ‘Prior Tertiary Study – No prior study’ reveals a greater proportion of emotional/affective themes and concepts, and a more centrally connected principal theme, than the group ‘Prior Tertiary Study – Prior study’.

IRI Subscale: Perspective Taking

During the interview participants were asked the following questions which provided the data for the Perspective Taking subscale analyses.

> And what about the health care professional? How do you think they're feeling having encountered this situation?

Perspective Taking analyses by Age.

Group: Age - Over 21.

Concepts manually merged: Nil.

Concepts manually removed: Doing, everything, kid, probably, seemed, sure, things.

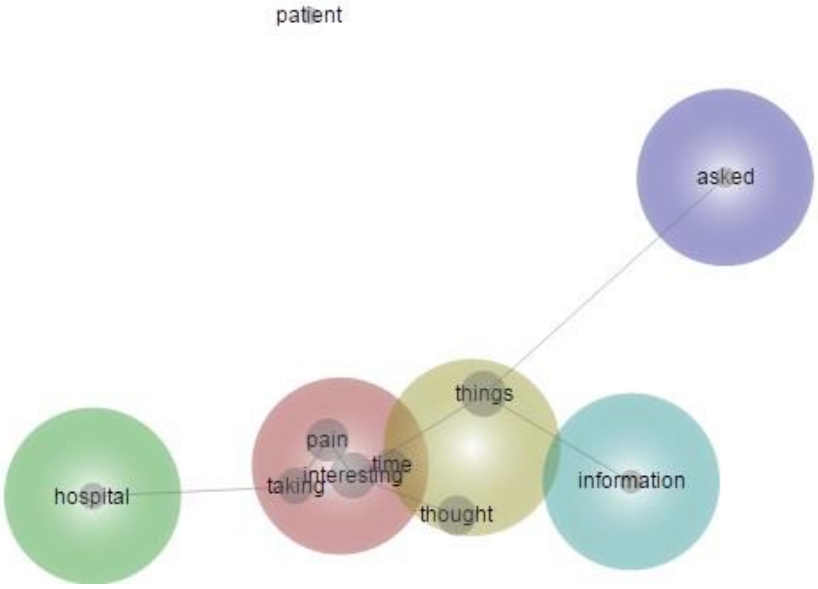


Figure 111. Concept map for Perspective Taking: Age – Over 21.

Theme	Connectivity	Relevance
interesting	100%	
things	57%	
hospital	11%	
information	07%	
asked	04%	

Figure 112. Thematic summary for Perspective Taking: Age – Over 21.

Word-Like	Count	Relevance
things	6	100%
thought	5	83%
interesting	4	67%
pain	4	67%
hospital	4	67%
taking	3	50%
time	2	33%
information	2	33%
asked	2	33%
patient	2	33%

Figure 113. Concept relevance for Perspective Taking: Age – Over 21.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Age – Over 21’ the principal theme is ‘interesting’. The theme and concept ‘things’ appears strongly in both categories despite being manually removed from the analysis. There is also a significant merging of three of the five identified themes. The concept ‘patient’ however appears as an outlier on the concept map without any visible connection to the other themes and concepts.

Group: Age - Under 21.

Concepts manually merged: Look and looked.

Concepts manually removed: Doing, down, guess, josh, look, probably, seemed, wrist.

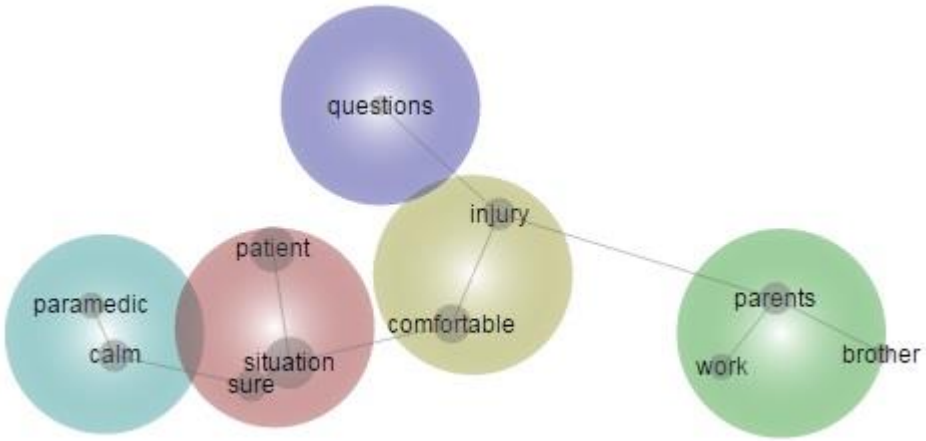


Figure 114. Concept map for Perspective Taking: Age – Under 21.

Theme	Connectivity	Relevance
situation	100%	
comfortable	53%	
parents	53%	
calm	41%	
questions	12%	

Figure 115. Thematic summary for Perspective Taking: Age – Under 21.

Word-Like	Count	Relevance
comfortable	7	100%
situation	6	86%
parents	6	86%
patient	5	71%
calm	5	71%
paramedic	4	57%
injury	3	43%
sure	3	43%
work	3	43%
questions	3	43%
brother	3	43%

Figure 116. Concept relevance for Perspective Taking: Age – Under 21.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group 'Age – Under 21' the three most connected and relevant themes and concepts appear in both results, being 'situation', 'comfortable' and 'parents'. There is a close association between the themes 'situation' and 'calm' which also encompass the concepts of 'patient' and 'paramedic' respectively.

In summary, both groups display significant connectivity and relevance across the themes and concepts with the exception of 'patient' which appears as an outlying concept in the 'Age – Over 21' group.

Perspective Taking analyses by Course.

Group: Course - Medicine.

Concepts manually merged: Nil.

Concepts manually removed: Doing, everything, kid, probably, things.

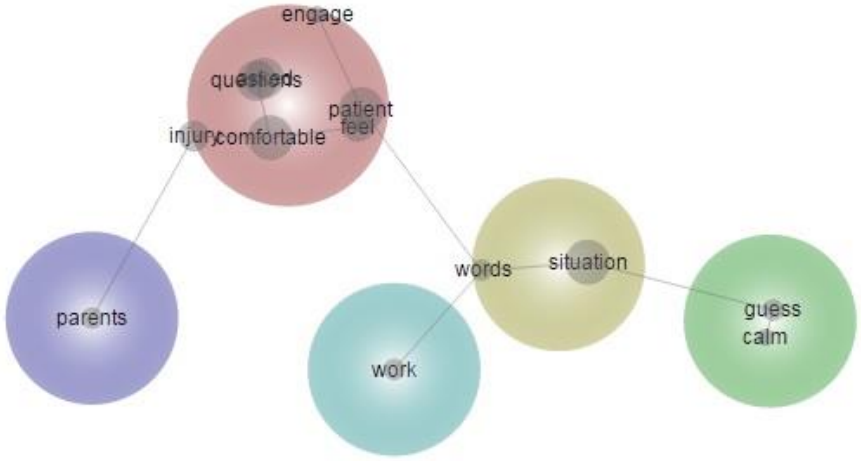


Figure 117. Concept map for Perspective Taking: Course – Medicine.

Theme	Connectivity	Relevance
patient	100%	
situation	26%	
guess	12%	
work	07%	
parents	07%	

Figure 118. Thematic summary for Perspective Taking: Course – Medicine.

Word-Like	Count	Relevance
comfortable	7	100%
situation	6	86%
parents	6	86%
patient	5	71%
calm	4	57%
asked	3	43%
questions	3	43%
injury	3	43%
guess	3	43%
work	3	43%
feel	2	29%
words	2	29%
engage	2	29%

Figure 119. Concept relevance for Perspective Taking: Course – Medicine.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘patient’ and the most relevant concept is ‘comfortable’. The principal theme is also the cluster point for multiple concepts however all the themes remain separate.

Group: Course - Paramedicine.

Concepts manually merged: Nil.

Concepts manually removed: Doing, hand, kid, seemed, sure, taking, things.

Figure 120. Concept map for Perspective Taking: Course – Paramedicine.

Theme	Connectivity	Relevance
pain	100%	
brother	64%	
thought	43%	
wrist	21%	
hospital	21%	
doing	07%	

Figure 121. Thematic summary for Perspective Taking: Course – Paramedicine.

Word-Like	Count	Relevance
pain	5	100%
thought	5	100%
interesting	4	80%
brother	4	80%
hospital	4	80%
wrist	3	60%
doing	3	60%
asking	2	40%

Figure 122. Concept relevance for Perspective Taking: Course – Paramedicine.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Course – Paramedicine’ the principal theme and concept is ‘pain’. The majority of the themes are closely related and are depicted in a linear manner. A high relevance of concepts is also reported.

Group: Course - Pharmacy.

Concepts manually merged: Concerned and concern.

Concepts manually removed: Gave, incoming, josh.

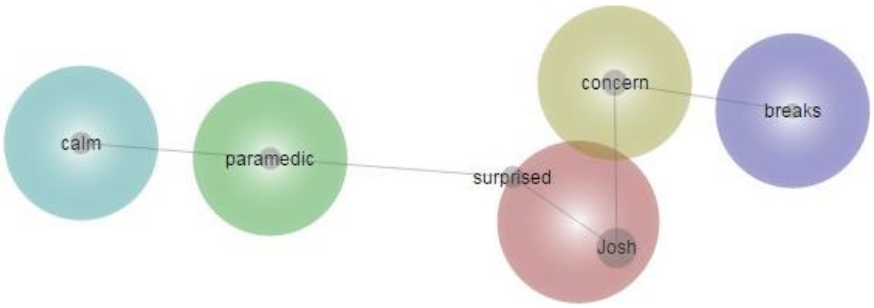


Figure 123. Concept map for Perspective Taking: Course – Pharmacy.

Theme	Connectivity	Relevance
Josh	100%	
concern	42%	
paramedic	37%	
calm	37%	
breaks	26%	

Figure 124. Thematic summary for Perspective Taking: Course – Pharmacy.

Name-Like	Count	Relevance
Josh	7	100%

Word-Like	Count	Relevance
calm	6	86%
concern	3	43%
paramedic	3	43%
surprised	3	43%
breaks	2	29%

Figure 125. Concept relevance for Perspective Taking: Course – Pharmacy.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Course – Pharmacy’ the principal theme to be ‘Josh’ despite this being a manually removed concept prior to undertaking the analysis. There is also a number of emotional/affective themes and concepts reported.

In summary, both the groups ‘Course – Medicine’ and ‘Course – Paramedicine’ revealed health-related principal themes in ‘patient’ and ‘pain’. This is contrasted with the group ‘Course – Pharmacy’ which identified ‘Josh’ the main theme. The group ‘Course – Medicine’ is the only group that displays clustering of concepts within a theme.

Perspective Taking analyses by Gender.

Group: Gender - Female.

Concepts manually merged: Nil.

Concepts manually removed: Doing, everything, guess, josh, probably, seemed, things, trying, wrist.

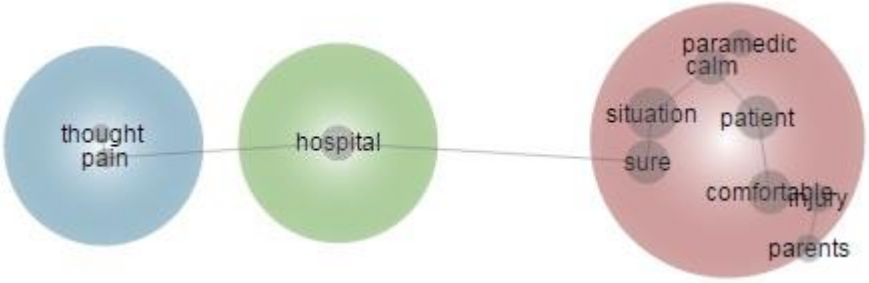


Figure 126. Concept map for Perspective Taking: Gender – Female.

Theme	Connectivity	Relevance
situation	100%	
pain	12%	
hospital	12%	

Figure 127. Thematic summary for Perspective Taking: Gender – Female.

Word-Like	Count	Relevance
comfortable	8	100%
thought	8	100%
calm	7	88%
parents	6	75%
situation	5	62%
hospital	5	62%
paramedic	5	62%
pain	5	62%
patient	4	50%
sure	4	50%
injury	3	38%

Figure 128. Concept relevance for Perspective Taking: Gender – Female.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Gender – Female’ the principal theme is ‘situation’ and is also the cluster point for multiple concepts. The central theme and concept is ‘hospital’ however this acts as a conduit between the most connected theme and its concepts, and the theme and concept of pain. This most relevant concept being ‘comfortable’ is also found within the principal theme.

Group: Gender - Male.

Concepts manually merged: Nil.

Concepts manually removed: Became, doing, further, josh, need.

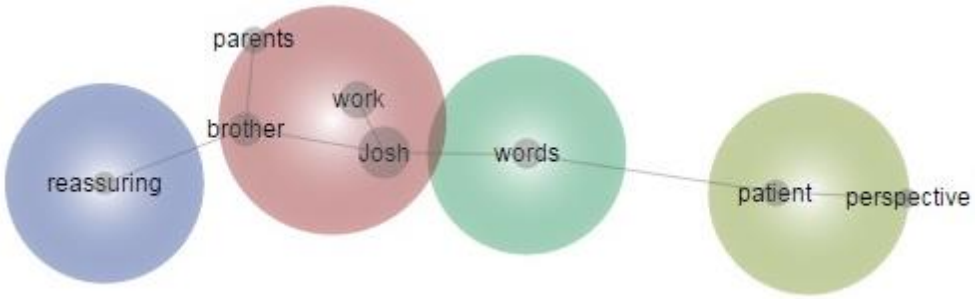


Figure 129. Concept map for Perspective Taking: Gender – Male.

Theme	Connectivity	Relevance
Josh	100%	
patient	17%	
words	17%	
reassuring	08%	

Figure 130. Thematic summary for Perspective Taking: Gender – Male.

Name-Like	Count	Relevance
Josh	6	100%

Word-Like	Count	Relevance
work	3	50%
patient	3	50%
brother	2	33%
words	2	33%
parents	2	33%
reassuring	2	33%
perspective	2	33%

Figure 131. Concept relevance for Perspective Taking: Gender – Male.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Gender – Male’ the principal theme is ‘Josh’ despite this having been manually removed from the concept list prior to the analysis. There is only a small number of other themes which all display low levels of connectivity. The relevance of concepts also highlight ‘work’ and ‘patient’, in addition to the anomalous reporting of ‘Josh’ as the most relevant concept.

In summary, both gender groups returned linear concept maps, however the group ‘Gender – Female’ revealed a higher number of emotional/affective concepts.

Perspective Taking analyses by Prior Tertiary Study.

Group: Prior Tertiary Study – No prior study.

Concepts manually merged: Look and looked.

Concepts manually removed: Doing, down, guess, josh, probably, seemed, sure, wrist.

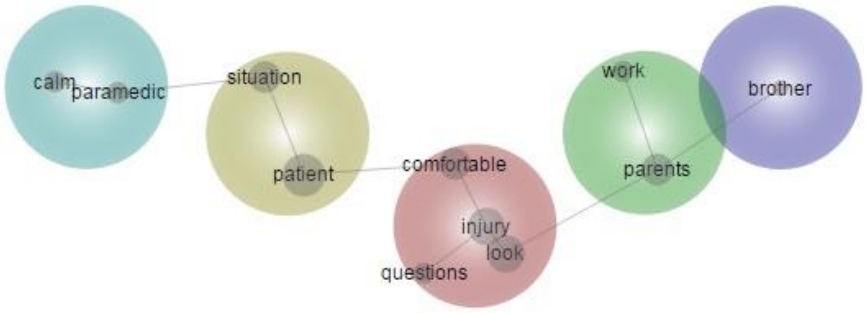


Figure 132. Concept map for Perspective Taking: Prior Tertiary Study – No prior study.

Theme	Connectivity	Relevance
look	100%	
patient	60%	
parents	40%	
paramedic	30%	
brother	10%	

Figure 133. Thematic summary for Perspective Taking: Prior Tertiary Study – No prior study.

Word-Like	Count	Relevance
comfortable	7	100%
look	6	86%
situation	6	86%
parents	6	86%
calm	6	86%
patient	5	71%
paramedic	4	57%
injury	3	43%
questions	3	43%
work	3	43%
brother	3	43%

Figure 134. Concept relevance for Perspective Taking: Prior Tertiary Study – No prior study.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group 'Prior Tertiary Study – No prior study' the principal theme is 'look' which also includes the concept with the highest relevance, 'comfortable'. There is a linear relationship depicted by the themes and they are largely separate from each other.

Group: Prior Tertiary Study –Prior study.

Concepts manually merged: Nil.

Concepts manually removed: Doing, kid, probably, seemed, sure, taking, things, whole.

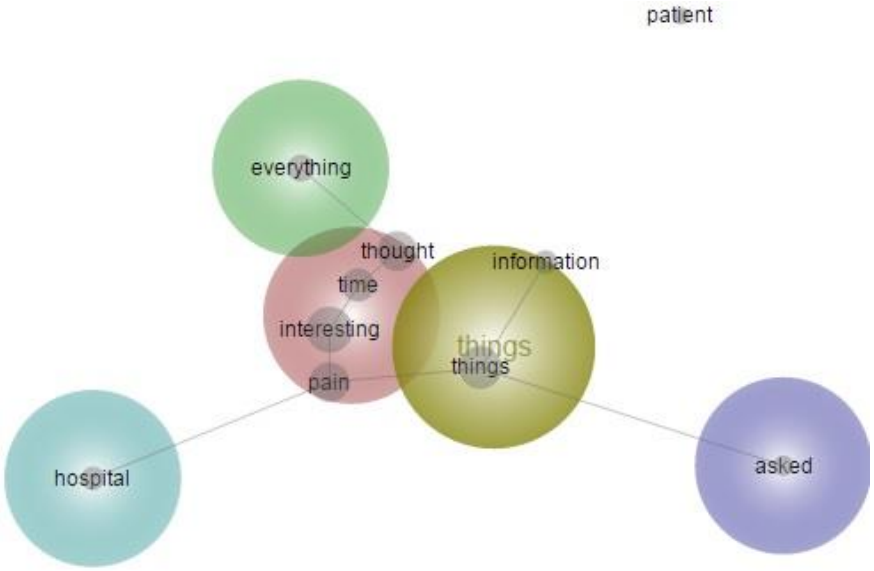


Figure 135. Concept map for Perspective Taking: Prior Tertiary Study – Prior study.

Theme	Connectivity	Relevance
interesting	100%	
things	36%	
everything	11%	
hospital	07%	
asked	04%	

Figure 136. Thematic summary for Perspective Taking: Prior Tertiary Study – Prior study.

Word-Like	Count	Relevance
things	6	100%
thought	5	83%
interesting	4	67%
pain	4	67%
hospital	4	67%
everything	3	50%
time	2	33%
information	2	33%
asked	2	33%
patient	2	33%

Figure 137. Concept relevance for Perspective Taking: Prior Tertiary Study – Prior study.

The analysis of the specific interview data for the IRI subscale of Perspective Taking revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme is ‘interesting’. There is a close association between the three main themes and also a clustering of concepts within ‘interesting’ and ‘things’. ‘Things’ also appears as the most

relevant concept despite being manually removed prior to the analysis. The concept ‘patient’ is depicted as an outlier on the concept map.

In summary, there is much greater connectivity of themes and clustering of concepts for the group ‘Prior Tertiary Study – Prior study’, where the ‘Prior Tertiary Study – No prior study’ group displays linear relationships between themes and concepts.

Self-Description Questionnaire III (SDQIII) subscale analysis

The third stage of the qualitative analysis addressed the Academic Self-concept subscale of the SDQIII for themes and concepts. The specific portion of each interview that related to this subscale was extracted from the interview text and is listed below:

> Now, we'll just chat briefly about your course. Are you enjoying it?
> Is it living up to your expectations?
> And how are you tracking with your results?

Responses were analysed for each set of participant groups by Age Group, Course, Gender, and Prior Tertiary Study. The results are reported below. The analysis is identified by subscale, category and subgroup. The manual adjustments to concept analysis are identified.

Academic Self-concept analyses by Age Group.

Group: Age – Over 21.

Concepts manually merged: Work and working.

Concepts manually removed: Coming, doing, guess, probably, stuff and things.

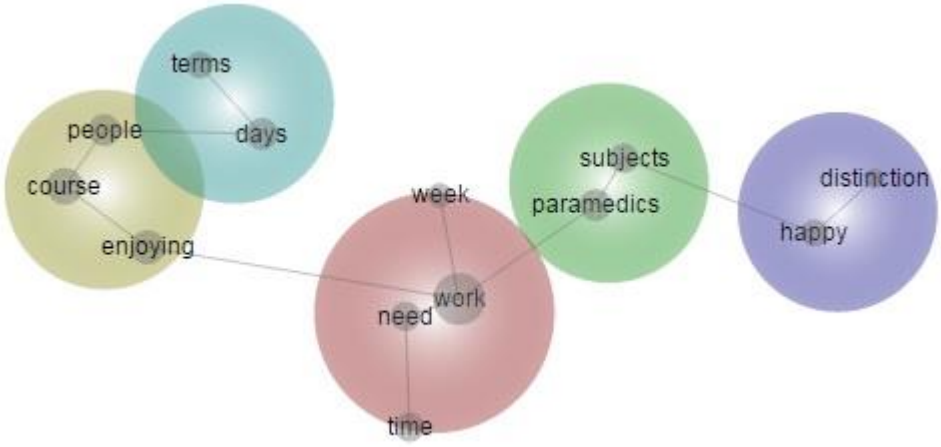


Figure 138. Concept map for Academic Self-concept: Age – Over 21.

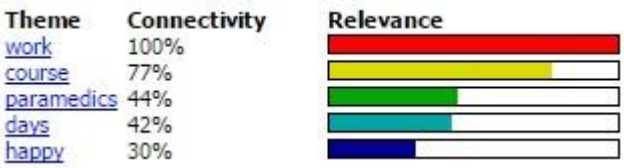


Figure 139. Thematic summary for Academic Self-concept: Age – Over 21.

Word-Like	Count	Relevance
work	14	100%
time	10	71%
course	9	64%
people	8	57%
need	8	57%
happy	8	57%
enjoying	7	50%
terms	7	50%
distinction	7	50%
paramedics	6	43%
subjects	6	43%
days	5	36%
week	5	36%

Figure 140. Concept relevance for Academic Self-concept: Age – Over 21.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group 'Age – Over 21' the principal theme is 'work'. The only emotional/affective theme apparent is 'happy' which is reveals the lowest connectivity to other themes. The concept 'happy' has a direct relationship to the concepts of 'distinction' and 'subjects'. The theme 'course' also ranks highly and encompasses the concepts 'people' and 'enjoying'

Group: Age – Under 21.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, everything, moment, probably and things.

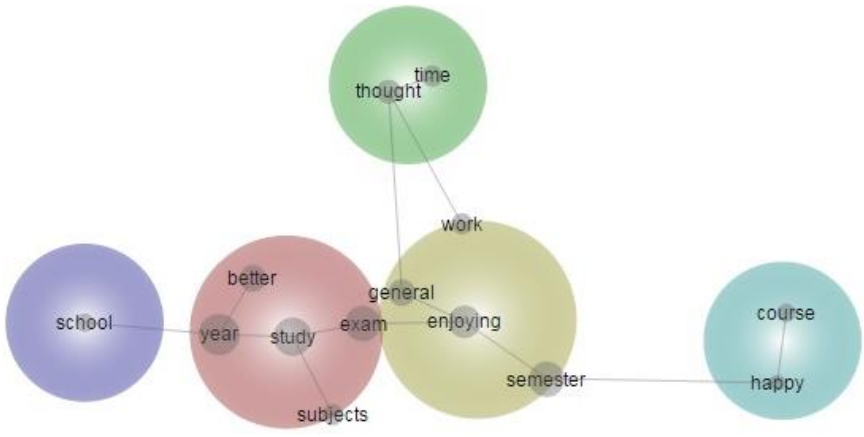


Figure 141. Concept map for Academic Self-concept: Age – Under 21.

Theme	Connectivity	Relevance
year	100%	
semester	68%	
thought	22%	
course	12%	
school	08%	

Figure 142. Thematic summary for Academic Self-concept: Age – Under 21.

Word-Like	Count	Relevance
year	18	100%
semester	16	89%
enjoying	15	83%
course	11	61%
study	10	56%
thought	8	44%
time	8	44%
better	7	39%
school	7	39%
exam	6	33%
work	6	33%
subjects	6	33%
happy	6	33%
general	5	28%

Figure 143. Concept relevance for Academic Self-concept: Age – Under 21.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Age – Under 21’ the principal theme is ‘year’. This group reveals no emotional/affective themes, although the concepts ‘enjoying’ and ‘happy’ are evident within the ‘semester’ and ‘course’ themes respectively.

In summary, both groups present academic related principal themes, ‘work’ and ‘year’; and both also report the positive emotional/affective concept ‘happy’. The ‘Age – Under 21’ group connect this concept with ‘course’, however the group ‘Age – Over 21’ connect the concept with ‘distinction’.

Academic Self-concept analyses by Course.

Group: Course – Medicine.

Concepts manually merged: Nil.

Concepts manually removed: Doing, everything, probably, stuff, year.

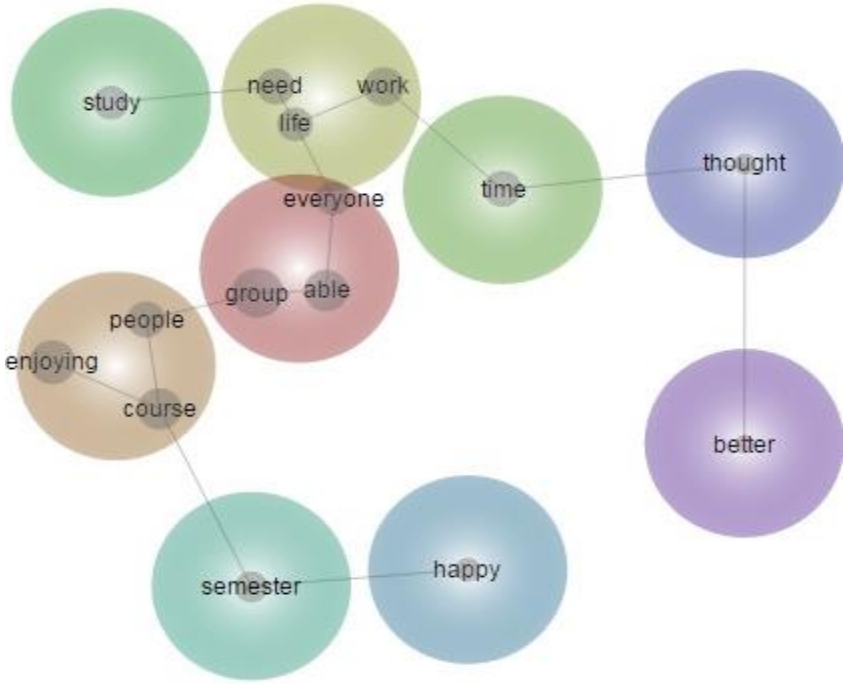


Figure 144. Concept map for Academic Self-concept: Course – Medicine.

Theme	Connectivity	Relevance
group	100%	
enjoying	97%	
work	83%	
time	28%	
study	25%	
semester	22%	
happy	14%	
thought	11%	
better	08%	

Figure 145. Thematic summary for Academic Self-concept: Course – Medicine.

Word-Like	Count	Relevance
enjoying	17	100%
semester	14	82%
study	12	71%
course	10	59%
happy	10	59%
work	9	53%
time	9	53%
need	7	41%
people	7	41%
thought	7	41%
able	6	35%
everyone	6	35%
life	6	35%
better	6	35%
group	5	29%

Figure 146. Concept relevance for Academic Self-concept: Course – Medicine.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘group’. A second strong theme is ‘enjoying’. This second theme also includes the concepts ‘course’ and ‘people’. There are a number of strongly relevant concepts that relate to academic study.

Group: Course – Paramedicine.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, guess, stuff, things, year.

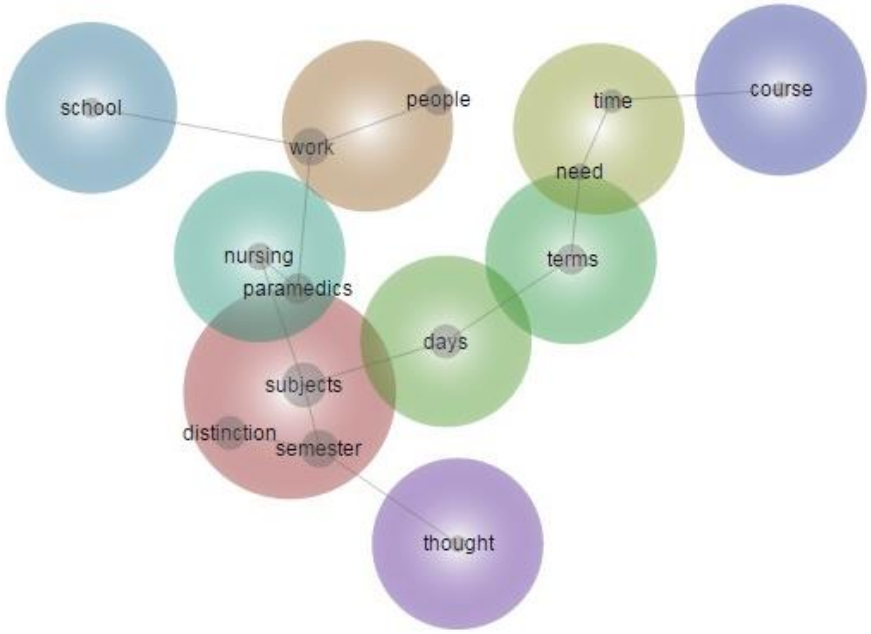


Figure 147. Concept map for Academic Self-concept: Course – Paramedicine.

Theme	Connectivity	Relevance
subjects	100%	
work	46%	
time	26%	
days	23%	
terms	21%	
nursing	18%	
school	13%	
thought	10%	
course	10%	

Figure 148. Thematic summary for Academic Self-concept: Course – Paramedicine.

Word-Like	Count	Relevance
time	12	100%
school	11	92%
subjects	10	83%
people	10	83%
course	10	83%
work	8	67%
distinction	8	67%
thought	8	67%
semester	7	58%
terms	7	58%
days	6	50%
paramedics	6	50%
need	6	50%
nursing	5	42%

Figure 149. Concept relevance for Academic Self-concept: Course – Paramedicine.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group 'Course – Paramedicine' the principal theme is 'subjects'. The concept map reveals strong interconnectivity between themes with some concept clustering within the themes ' subjects', 'work' and 'nursing'. There is a strong relationship between adjacent themes related to academic study and linking the themes 'subjects' and 'course'.

Group: Course – Pharmacy.

Concepts manually merged: Related and relation.

Concepts manually removed: Doing, down.

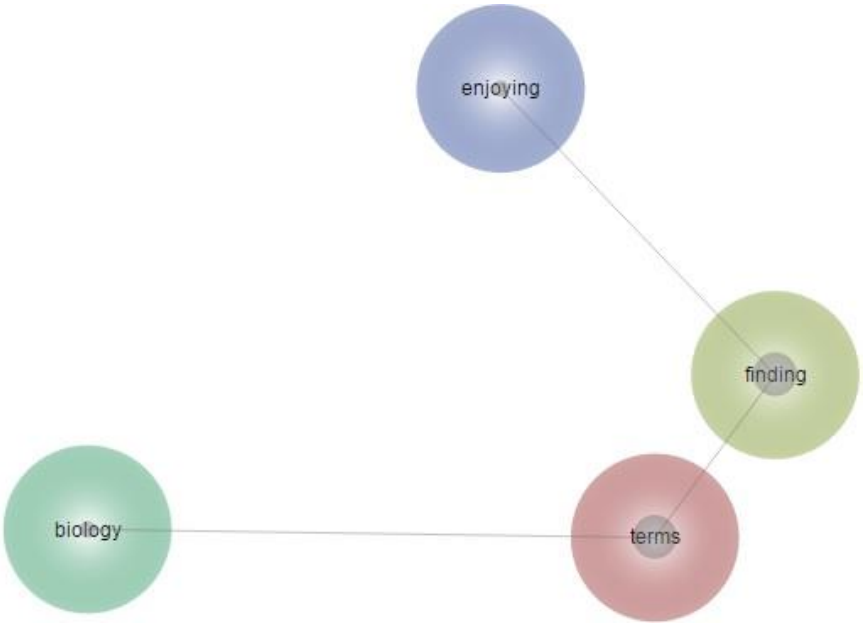


Figure 150. Concept map for Academic Self-concept: Course – Pharmacy.

Theme	Connectivity	Relevance
terms	100%	
finding	100%	
biology	75%	
enjoying	75%	

Figure 151. Thematic summary for Academic Self-concept: Course – Pharmacy.

Word-Like	Count	Relevance
biology	3	100%
finding	2	67%
terms	2	67%
enjoying	2	67%

Figure 152. Concept relevance for Academic Self-concept: Course – Pharmacy.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group 'Course – Pharmacy' the principal theme is 'terms' and the most relevant concept is 'biology'. There is a duplication of all concepts as themes, although the relative importance of each item changes based on the thematic or conceptual status. The results for this group are likely to be influenced by the very small participation rate for this course.

Academic Self-concept analyses by Gender.

Group: Gender – Female.

Concepts manually merged: Nil.

Concepts manually removed: Doing, guess, need, probably, stuff, things, year.

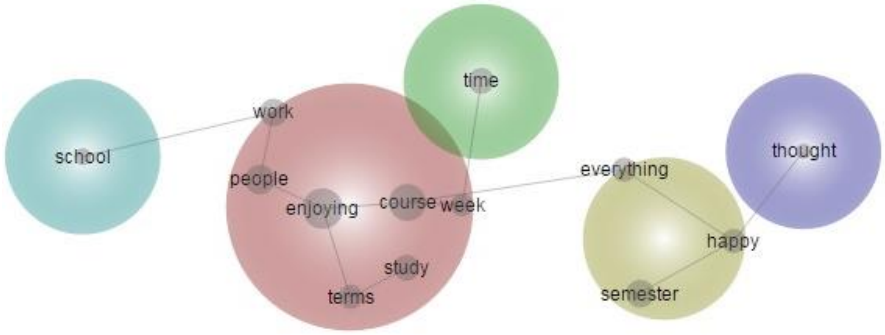


Figure 153. Concept map for Academic Self-concept: Gender – Female.

Theme	Connectivity	Relevance
enjoying	100%	
semester	35%	
time	12%	
school	06%	
thought	05%	

Figure 154. Thematic summary for Academic Self-concept: Gender – Female.

Word-Like	Count	Relevance
enjoying	21	100%
semester	17	81%
time	16	76%
course	15	71%
people	15	71%
happy	15	71%
work	14	67%
school	13	62%
terms	12	57%
study	11	52%
everything	11	52%
thought	11	52%
week	8	38%

Figure 155. Concept relevance for Academic Self-concept: Gender – Female.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Gender – Female’ the principal theme and concept is ‘enjoying’. This is also reinforced by the presence of the concept ‘happy’. The concept ‘people’ also features as a strong influencing factor. There is a significant concept cluster within the principal theme, as well as intersection with the theme ‘time’ and a direct relationship with the theme ‘semester’ which also includes three additional concepts.

Group: Gender – Male.

Concepts manually merged: Thinking and thought.

Concepts manually removed: Doing, probably, stuff, things, year.

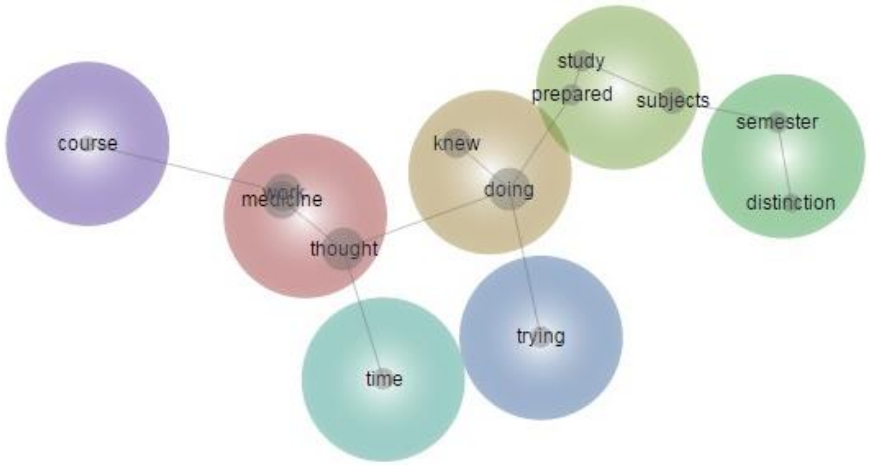


Figure 156. Concept map for Academic Self-concept: Gender – Male.

Theme	Connectivity	Relevance
thought	100%	
doing	59%	
subjects	44%	
semester	22%	
trying	12%	
time	12%	
course	06%	

Figure 157. Thematic summary for Academic Self-concept: Gender – Male.

Word-Like	Count	Relevance
doing	7	100%
thought	6	86%
time	5	71%
semester	5	71%
course	5	71%
medicine	4	57%
work	4	57%
subjects	4	57%
trying	4	57%
study	3	43%
distinction	3	43%
knew	2	29%
prepared	2	29%

Figure 158. Concept relevance for Academic Self-concept: Gender – Male.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Gender – Male’ the principal theme and concept is ‘thought’. The concept with the greatest relevance is ‘doing’ which also appears as a strong theme, despite having been manually removed from the concept list prior to analysis. The range of themes and concepts has a strong relationship to academic study.

In summary, there is a significant contrast between a number of the themes and concepts revealed for the groups ‘Gender – Female’ and ‘Gender – Male’. Results for the ‘Gender – Female’ group strongly suggest a high level of enjoyment related to the academic study. This is not present in the results for the ‘Group – Male’. Similarly the group ‘Gender – Female’ display a strong relevance for the concept ‘people’. This concept, or an equivalent, does not appear in the analysis for the group ‘Gender – Male’.

Academic Self-concept analyses by Prior Tertiary Study.

Group: Prior Tertiary Study – No prior study.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, probably, things, year.

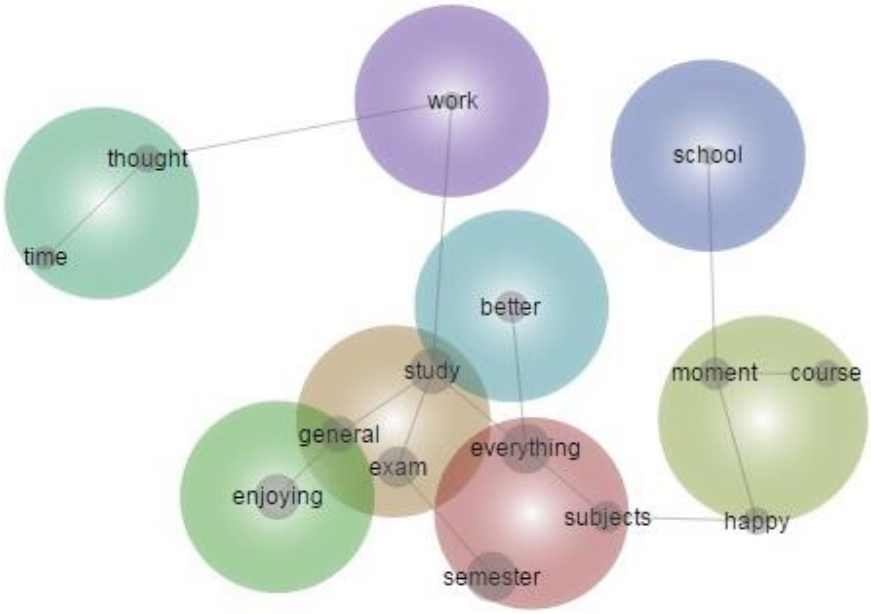


Figure 159. Concept map for Academic Self-concept: Prior Tertiary Study – No prior study.

Theme	Connectivity	Relevance
everything	100%	
study	92%	
moment	62%	
enjoying	35%	
thought	35%	
better	23%	
school	12%	
work	12%	

Figure 160. Thematic summary for Academic Self-concept: Prior Tertiary Study – No prior study.

Word-Like	Count	Relevance
semester	16	100%
enjoying	15	94%
course	11	69%
study	10	62%
moment	8	50%
thought	8	50%
time	8	50%
everything	7	44%
better	7	44%
subjects	7	44%
happy	7	44%
school	7	44%
exam	6	38%
work	6	38%
general	5	31%

Figure 161. Concept relevance for Academic Self-concept: Prior Tertiary Study – No prior study.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Prior Tertiary Study – No prior study’ the principal theme is ‘everything’ and the next most connected theme is ‘study’. Continuing the academic relationship, the most relevant concepts is ‘semester’. The emotional/affective theme and concept identified as ‘enjoying’ features strongly in both results.

Group: Prior Tertiary Study – Prior study.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, guess, probably, sit, stuff, things.

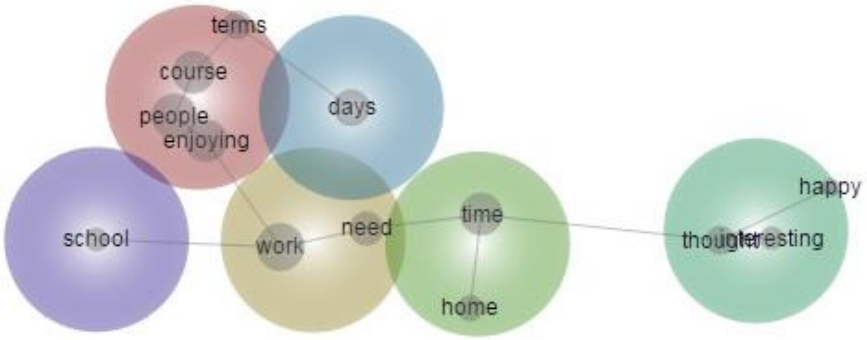


Figure 162. Concept map for Academic Self-concept: Prior Tertiary Study – Prior study.

Theme	Connectivity	Relevance
people	100%	
work	52%	
time	40%	
thought	30%	
days	22%	
school	10%	

Figure 163. Thematic summary for Academic Self-concept: Prior Tertiary Study – Prior study.

Word-Like	Count	Relevance
people	13	100%
time	13	100%
work	11	85%
course	9	69%
happy	9	69%
need	8	62%
thought	8	62%
interesting	8	62%
enjoying	7	54%
terms	7	54%
days	6	46%
home	6	46%
school	6	46%

Figure 164. Concept relevance for Academic Self-concept: Prior Tertiary Study – Prior study.

The analysis of the specific interview data for the SDQIII subscale of Academic Self-concept revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme is ‘people’. There is a high degree of interconnectivity of the themes focussing on those around the principal theme. There is also some concept clustering across the concept map, which includes the emotional/affective concepts of ‘happy’ and ‘enjoying.

In summary, the group ‘Prior Tertiary Study – Prior study’ places ‘people’ as the most significant theme and concept. This is contrasted with the group ‘Prior Tertiary Study – No prior study’ where this, or a similar theme or concept, does not appear. Both groups do, however, present at least one emotional/affective concept.

The Big Fish Little Pond Effect (BFLPE) analysis

The fourth stage of the qualitative analysis addressed the BFLPE for themes and concepts. The specific portion of each interview that related to this phenomenon was extracted from the interview text and analysed for each set of participant groups by Age Group, Course, Gender, and Prior Tertiary Study. The results are reported below. The analysis is identified by category and subgroup. The manual adjustments to concept analysis are identified.

Big Fish Little Pond analyses by Age.

Group: Age – Over 21.

Concepts manually merged: Expect and expected.

Concepts manually removed: Coming, doing, guess, having.

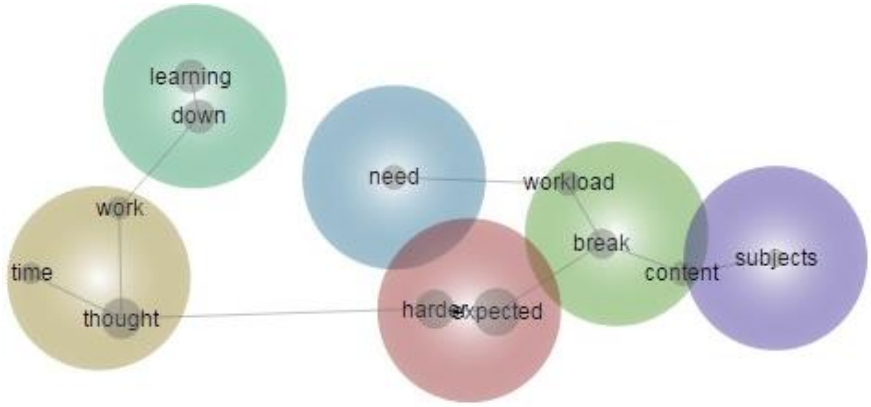


Figure 165. Concept map for BFLPE: Age – Over 21.

Theme	Connectivity	Relevance
expected	100%	
thought	96%	
break	89%	
learning	77%	
need	28%	
subjects	19%	

Figure 166. Thematic summary for BFLPE: Age – Over 21.

Word-Like	Count	Relevance
thought	10	100%
expected	9	90%
harder	6	60%
learning	6	60%
down	6	60%
break	4	40%
need	4	40%
time	4	40%
content	3	30%
workload	3	30%
work	3	30%
subjects	3	30%

Figure 167. Concept relevance for BFLPE: Age – Over 21.

The analysis of the specific interview data for the BFLPE revealed that for students in the group 'Age – Over 21' the principal theme is 'expected' within which sits the concepts 'expected' and 'harder'. The concept 'expected' also has the highest relevance. The themes and concepts within this analysis are focussed upon the academic pursuit.

Group: Age – Under 21.

Concepts manually merged: Nil.

Concepts manually removed: Probably, stuff, things, trying, used, year.

Figure 168. Concept map for BFLPE: Age – Under 21.

Theme	Connectivity	Relevance
expected	100%	
thought	80%	
harder	42%	
study	36%	

Figure 169. Thematic summary for BFLPE: Age – Under 21.

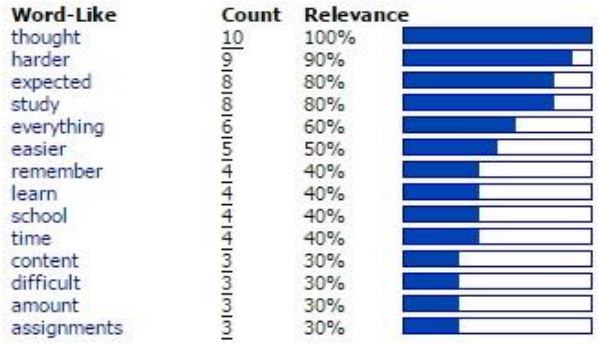


Figure 173. Concept map for BFLPE: Age – Under 21.

The analysis of the specific interview data for the BFLPE revealed that for students in the group 'Age – Over 21' the principal theme is 'expected' within which sits a cluster of concepts including 'remember', 'amount', 'content', 'expected' and 'easier'. The concept 'thought' has the highest relevance. The themes and concepts within this analysis are also focussed upon the academic pursuit.

Big Fish Little Pond analyses by Course.

Group: Course – Medicine.

Concepts manually merged: Expectations and expected.

Concepts manually removed: Stuff, things, used, year.

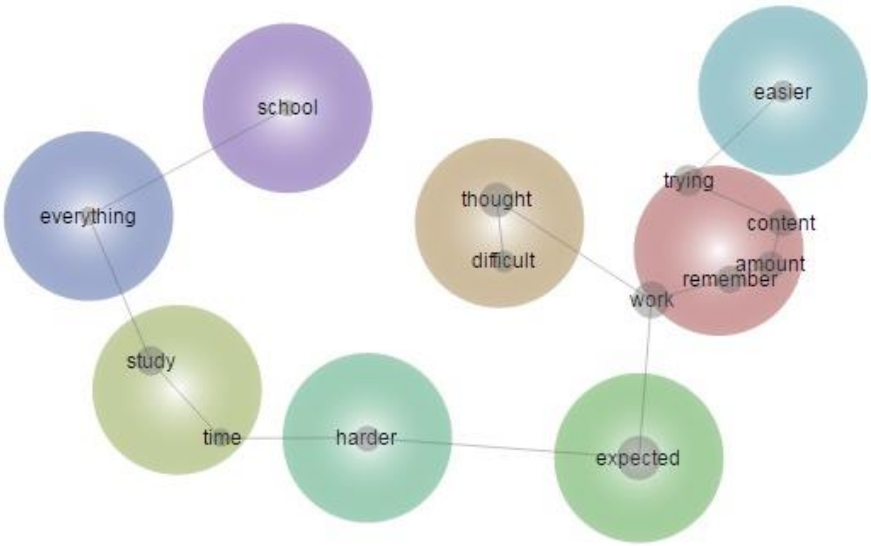


Figure 171. Concept map for BFLPE: Course – Medicine.

Theme	Connectivity	Relevance
work	100%	
thought	38%	
study	31%	
expected	30%	
harder	17%	
easier	14%	
everything	12%	
school	10%	

Figure 172. Thematic summary for BFLPE: Course – Medicine.

Word-Like	Count	Relevance
expected	12	100%
study	9	75%
thought	7	58%
harder	7	58%
time	5	42%
everything	5	42%
work	4	33%
trying	4	33%
easier	4	33%
school	4	33%
remember	3	25%
content	3	25%
amount	3	25%
difficult	3	25%

Figure 173. Concept relevance for BFLPE: Course – Medicine.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Course – Medicine’ the principal theme is ‘work’. This theme has a significantly higher degree of connectivity than the other themes and is the focal point for a concept cluster

including ‘trying’, ‘content’, ‘amount’, ‘remember’ and ‘work’. This theme does not include the main concept however, which is placed in a self-named theme, ‘expected’.

Group: Course – Paramedicine.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, having, stuff.

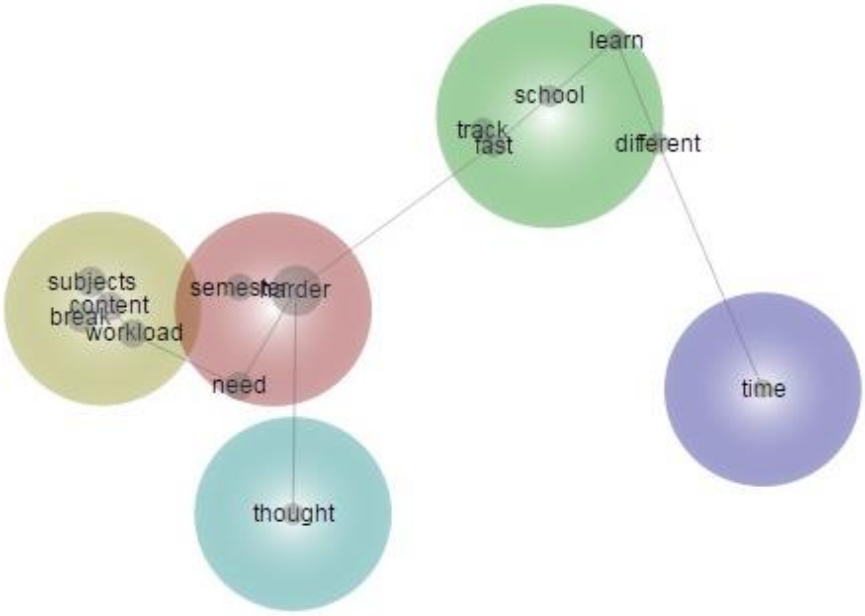


Figure 174. Concept map for BFLPE: Course – Paramedicine.

Theme	Connectivity	Relevance
harder	100%	
break	93%	
track	58%	
thought	11%	
time	05%	

Figure 175. Thematic summary for BFLPE: Course – Paramedicine.

Word-Like	Count	Relevance
harder	14	100%
break	4	29%
subjects	4	29%
need	4	29%
thought	4	29%
content	3	21%
workload	3	21%
semester	3	21%
time	3	21%
track	2	14%
fast	2	14%
school	2	14%
different	2	14%
learn	2	14%

Figure 176. Concept relevance for BFLPE: Course – Paramedicine.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Course – Paramedicine’ the principal theme is ‘harder’. This is also the most relevant theme. The dual theme and concept of ‘break’ is unique to this cohort who undertakes a fast-track course with three semesters of study per year. There is a large drop in relevance between the first and second concept.

Group: Course – Pharmacy.

Concepts manually merged: Assessments and assignments, learn and learned.

Concepts manually removed: Meant, probably, scratch, support, take.

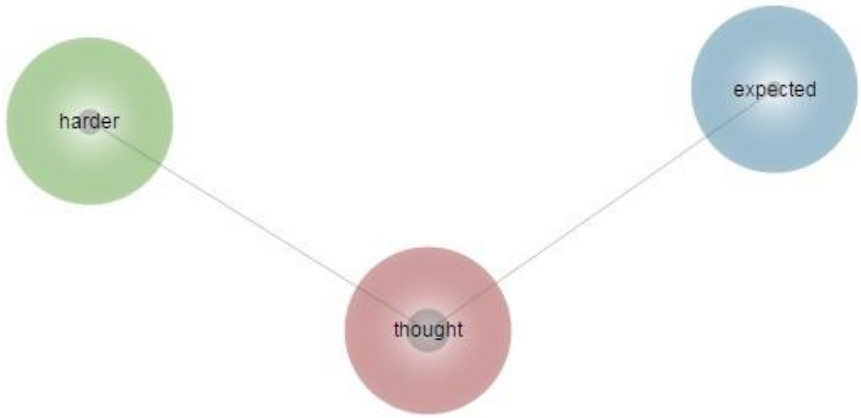


Figure 177. Concept map for BFLPE: Course – Pharmacy.

Theme	Connectivity	Relevance
thought	100%	
harder	71%	
expected	57%	

Figure 178. Thematic summary for BFLPE: Course – Pharmacy.

Word-Like	Count	Relevance
thought	6	100%
harder	4	67%
expected	3	50%

Figure 179. Concept relevance for BFLPE: Course – Pharmacy.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Course – Pharmacy’ the principal theme is ‘thought’ with the other themes being ‘harder’ and ‘expected’. Again the group ‘Course – Pharmacy’ has returned a small, duplicate number of themes and concepts. The results for this group are likely to be influenced by the very small participation rate for this course.

In summary, there are substantial differences in the thematic and conceptual content between the course groupings for the BFLPE. The analysis for the group ‘Course – Medicine’ displays a high proportion of themes and concepts that reflect the challenges of the course. Similarly for the group ‘Course – Paramedicine’, there is a clarity regarding the pressure of the ‘fast-track’ nature of the course. The challenging nature of the course is also reflected in the ‘Course – Pharmacy’ results, but again these are influenced by the small number of participants.

Big Fish Little Pond analyses by Gender.

Group: Gender – Female.

Concepts manually merged: Nil.

Concepts manually removed: Coming, doing, guess, probably, stuff, things, trying.

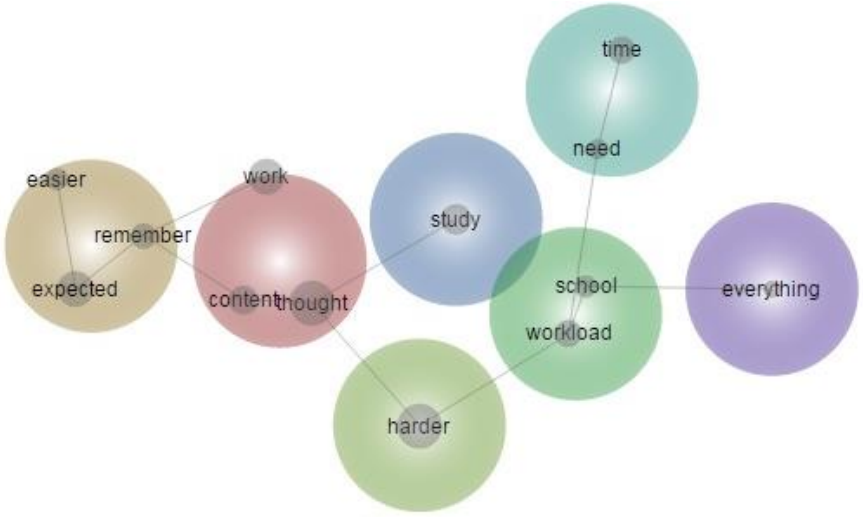


Figure 180. Concept map for BFLPE: Gender – Female.

Theme	Connectivity	Relevance
thought	100%	
expected	71%	
harder	42%	
workload	40%	
time	38%	
study	27%	
everything	12%	

Figure 181. Thematic summary for BFLPE: Gender – Female.

Word-Like	Count	Relevance
harder	14	100%
thought	11	79%
expected	11	79%
time	8	57%
work	6	43%
study	5	36%
content	5	36%
workload	5	36%
remember	5	36%
easier	5	36%
school	5	36%
need	4	29%
everything	4	29%

Figure 182. Concept relevance for BFLPE: Gender – Female.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Gender – Female’ the principal theme is ‘thought’ which is also related to the additional concepts ‘work’ and ‘content’. The concept with the highest relevance is ‘harder’.

This also appears as a highly ranked theme. There are a considerable number of concepts evident with concept clustering within a number of themes.

Group: Gender – Male.

Concepts manually merged: Expectations and expect.

Concepts manually removed: Seems, whereas, whole.

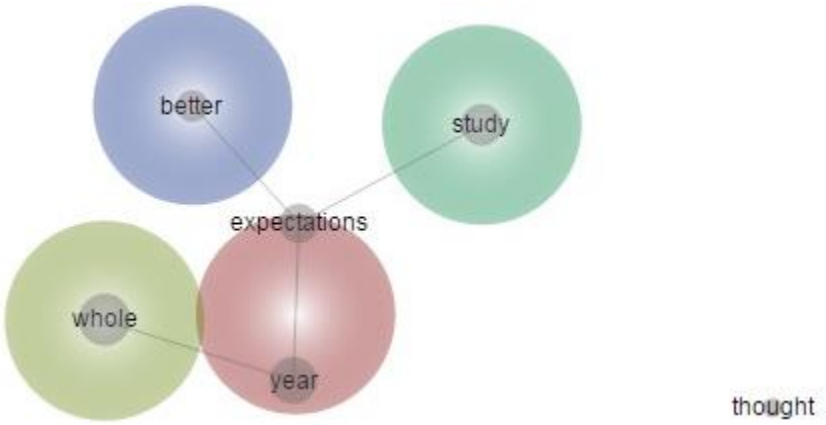


Figure 183. Concept map for BFLPE: Gender – Male.

Theme	Connectivity	Relevance
year	100%	
whole	68%	
study	47%	
better	26%	

Figure 184. Thematic summary for BFLPE: Gender – Male.

Word-Like	Count	Relevance
whole	8	100%
year	5	62%
study	5	62%
expectations	3	38%
thought	3	38%
better	2	25%

Figure 185. Concept relevance for BFLPE: Gender – Male.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Gender – Male’ the principal theme is ‘year’ which also appears as a highly relevant concept. The concept ‘thought’ appears as an outlier on the concept map with no connection to other concepts or themes.

In summary, the results for the group ‘Gender – Female’ display a number of thematic and conceptual materials relating to high rates of challenge within the academic pursuit. This

contrasts with the group ‘Gender – Male’ where there are considerably less themes and concepts revealed through the analysis. Of those that are evident there is only one concept and theme, being ‘better’, that is of a descriptive nature and may reveal information regarding the academic experience of this group.

Big Fish Little Pond analyses by Prior Tertiary Study.

Group: Prior Tertiary Study – No prior study.

Concepts manually merged: Nil.

Concepts manually removed: Probably, stuff, things, trying, used, year.

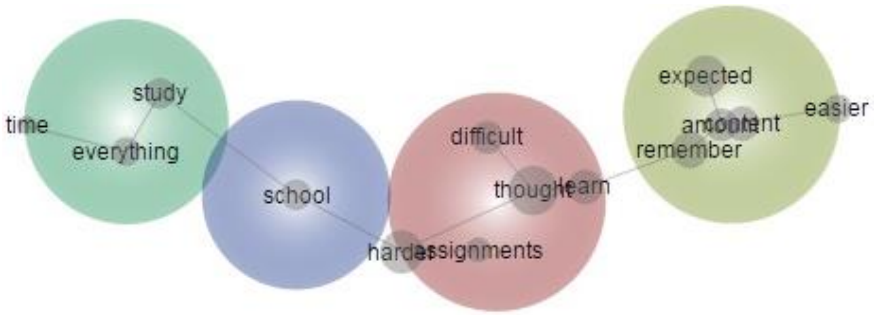


Figure 186. Concept map for BFLPE: Prior Tertiary Study – No prior study.

Theme	Connectivity	Relevance
thought	100%	
expected	92%	
study	33%	
school	15%	

Figure 187. Thematic summary for BFLPE: Prior Tertiary Study – No prior study.

Word-Like	Count	Relevance
thought	11	100%
harder	10	91%
expected	8	73%
study	8	73%
everything	6	55%
easier	5	45%
remember	4	36%
learn	4	36%
school	4	36%
time	4	36%
content	3	27%
difficult	3	27%
amount	3	27%
assignments	3	27%

Figure 188. Concept relevance for BFLPE: Prior Tertiary Study – No prior study.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Prior Tertiary Study – No prior study’ the principal theme is ‘thought’ with ‘expected’ also ranking with high connectivity within a linear concept map. These two themes also provide for considerable concept clustering. Whilst the concept ‘harder’ is highly relevant, the contrasting concept, ‘easier’, also appears in the upper portion of the conceptual relevance figure. This concept does however sit at the perimeter of the theme ‘expected’.

Group: Prior Tertiary Study – Prior study.

Concepts manually merged: Expect and expected.

Concepts manually removed: Doing, down, guess, having, need.

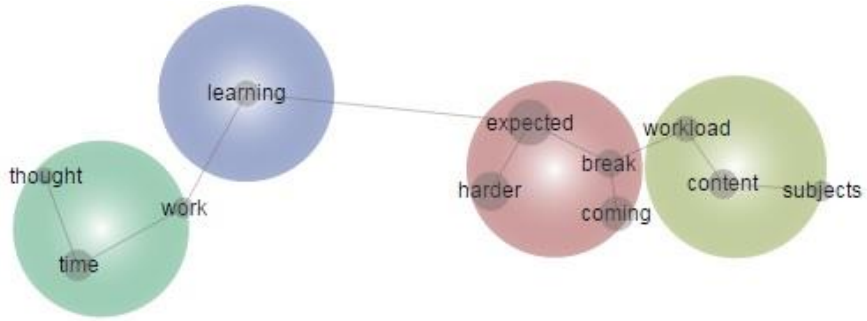


Figure 189. Concept map for BFLPE: Prior Tertiary Study – Prior study.

Theme	Connectivity	Relevance
expected	100%	
content	49%	
time	43%	
learning	17%	

Figure 190. Thematic summary for BFLPE: Prior Tertiary Study – Prior study.

Word-Like	Count	Relevance
time	9	100%
expected	8	89%
learning	6	67%
harder	5	56%
coming	4	44%
content	3	33%
break	3	33%
workload	3	33%
subjects	3	33%
work	3	33%
thought	3	33%

Figure 191. Concept relevance for BFLPE: Prior Tertiary Study – Prior study.

The analysis of the specific interview data for the BFLPE revealed that for students in the group ‘Prior Tertiary Study – Prior study’ the principal theme is ‘expected’ with the most relevant concept being ‘time’. ‘Expected’ also appears as a highly relevant concept and there is concept clustering within the two main themes. The concept ‘harder’ provides reference for the academic experiences of this group.

In summary, the results for both groups are linear in nature and reveal that the concepts ‘harder’ and ‘expected’ are of relevance to both groups.

Summary. This chapter has presented both the quantitative and qualitative results from analyses of the Interpersonal Reactivity Index (IRI), the Academic Subscale of the Self-Description Questionnaire III (SDQIII) and specific data collected from the Student Data Survey (SDS) that provided a focus on the Big Fish Little Pond Effect.

Initially the descriptive statistics for the quantitative analyses were presented along with a deeper analysis of the differences that were revealed between the varying groups of participants on both the IRI and SDQIII. Additional consideration was given to the highlighted demographic variables of Age Group, Course, Gender, and whether or not the participants had undertaken Prior Tertiary Study. Significant differences were highlighted between these variables. Further, and in direct response to the research questions guiding this study, multiple linear regressions revealed that female participants achieved higher scores on the Fantasy subscale of the IRI than did males, and that Pharmacy students achieved lower results on the Empathic Concern subscale than Medicine students. When exploring the acquisition of clinical skills the analyses again revealed gender differences, with male students achieving significantly lower scores when compared to female students. A further significant finding suggested that Paramedicine students achieved higher clinical skills scores when compared to Medicine students.

The following chapter will discuss these results with reference to the three research questions established through the exploration of the relevant literature and articulated at the end of Chapter 2.

Chapter 5: Discussion

Overview

This chapter addresses the purpose and goals of this study by responding to each of the research questions, providing an exploration of both the quantitative and qualitative results within the context of the literature presented in Chapter 2. Limitations of the study are addressed in terms of each research question, along with emerging opportunities for future research. These elements are drawn together in the conclusion, and an overview of the findings is presented.

This study examined the place of gifted education pedagogy in undergraduate healthcare education in Australia, with a particular focus on students' acquisition of clinical skills within the disciplines of Medicine, Paramedicine and Pharmacy. Chapter 2 revealed that clinical skills bring together the theoretical biologically-based knowledge and diagnostic skills of the health disciplines alongside communication and interpersonal skills. These two areas when combined provide the connection between care-giver and care-receiver. Chapter 2 also highlighted the fact that the quality of this relationship has significant impact upon the effectiveness of healthcare provision (Banja, 2006; Hirsh & Worley, 2013).

It is clear that places within undergraduate healthcare courses are offered to academically gifted students, as defined within Gagné's Differentiated Model of Giftedness and Talent (Gagné, 1991, 2008, 2013). Alongside of this there is significant evidence-based policy development within the tertiary sector that highlights the imperative for student-centred approaches to learning and teaching (The University of Tasmania, 2012). Given this context it is vital to have an understanding of pedagogy as it relates to gifted students. This study represents a framework within which to consider specific aspects of the interface between the acquisition of clinical skills with a focus on empathy, along with other characteristics of academic giftedness, specifically academic self-concept and the Big Fish

Little Pond Effect. In addition, Dąbrowski's Theory of Positive Disintegration also sits within the gifted education literature and so provides an additional relevant contextual lens through which to further examine the results of the study. In this way the study contributes to the broader understanding of clinical skills acquisition, including empathy and its development in academically gifted undergraduate Medicine, Paramedicine and Pharmacy students.

The study used a mixed methods approach, initially gathering quantitative data from consenting first year Medicine, Paramedicine and Pharmacy students at the University of Tasmania. This was undertaken in the first half of the students' first semester of university. Qualitative data was gathered in the latter part of the second semester of the same year and subsequently both sets of data were analysed to address the following research questions:

1. To what extent:
    a) do student demographics, specifically Age Group, Course, Gender and Prior Tertiary Study; predict levels of empathic responding and academic self-concept?
    b) does empathic responding and academic self-concept predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?; and
    c) do student demographics, specifically Age Group, Course, Gender and Prior Tertiary Study; predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?
2. To what extent is there evidence of the Big Fish Little Pond Effect across first year healthcare undergraduate students at the University of Tasmania?
3. To what extent does Dąbrowski's Theory of Positive Disintegration inform the results of this study?

The response to the first research question will be presented in sections. This includes a final examination of both the quantitative and qualitative data for each part of the question, followed by a discussion of the implications of these findings.

Response to Research Question 1a

To what extent do student demographics, specifically Age Group, Course, Gender and Prior Tertiary Study; predict levels of empathic responding and academic self-concept?

The Interpersonal Reactivity Index (IRI) (M. H. Davis, 1980, 1983) provided the quantitative measure for empathic responding in this study through its measurement of four subscales of the construct empathy: Fantasy, Perspective Taking, Empathic Concern, and Personal Distress. The highest possible score on any subscale within the IRI is 28. As detailed in Chapter 4, the data from the IRI underwent a variety of assumption testing and investigations before being subject to an hierarchical multiple linear regression.

The four specified demographics were analysed against each of the IRI subscales through the hierarchical multiple linear regression analyses. Whilst there were not significant results for all of the demographic variables against Perspective Taking and Personal Distress, there were gender-based consistencies across both of these subscales (see Table 23).

Across all course groupings in the current study, females gained higher scores on the Perspective Taking subscale than did males. The Mean scores for females in Medicine, Paramedicine and Pharmacy on this subscale were 20.2, 21.2, and 22 respectively, whereas the Mean scores for males in the same groups were 19.9, 19.3 and 14.5. Whilst there is only a small difference between the scores achieved for each gender in the course groups Medicine and Paramedicine, the difference between male and female Pharmacy participants is statistically significant. Female Pharmacy students achieved a Mean score of 22, where male Pharmacy students achieved a Mean score of 14.5.

There are two points of particular note from the results on this subscale: a) the higher Mean scores for females across all participating course groups, and b) the significantly different scores between genders in Pharmacy group.

The Perspective Taking subscale measures the "tendency to spontaneously adopt the psychological point of view of others" (M. H. Davis, 1983, pp. 113-114). Davis' definition of Perspective Taking does not clarify however whether there is a qualitative change in the behaviour that parallels the increase in subscale scores, or whether the trait is unidimensional and simply increases in frequency as the score increases on the subscale. For the purposes of this study the increase in scores solely reflects an increase in the frequency of the trait being measured. The rationale for this interpretation lies in Davis' use of the word "spontaneously" (M. H. Davis, 1983, pp. 113-114), which implies a lack of knowing capacity on the part of the individual, to analyse and reflect upon the view of the other person and then make a conscious, volitional decision regarding that view. This example is reminiscent of an automatic group-think approach.

In a healthcare situation a total and spontaneous adoption of another's point of view may not be an entirely desirable trait. Rather, in a clinical setting, it is the capacity to both acknowledge and critically appraise another's point of view that are more appropriate responses. Capacity for such critical appraisal would allow the healthcare professional to remain engaged with the knowledge, diagnostic skills, and appropriate communication and interpersonal skills required for the deployment of effective clinical skills.

In examining the specific results for gender in this study, the unequal representation of the gender groups male and female exhibits a ratio of participants at approximately 1:4, this with considerably more female participants in the study. It may be that this reflects the gender imbalance in healthcare course admissions, or it may relate more to a gender difference in willingness to participate in research studies. Regardless, it is important to recognise this

factor as a potential limitation of the study that may influence the findings. Whilst further research with larger participant groups is needed to determine the generalisability of these gender-based results this immediate finding could be used to inform learning and teaching within the local context. Whilst this finding may not be the catalyst to major curriculum reform, it warrants consideration regarding the current student cohort and what intervention strategies may be developed to reduce the impact in a clinical setting regarding the tendency identified in the Perspective Taking subscale results.

There are a number of factors, both study limitations and demographic trends that may have influenced this result from the Pharmacy cohort. The participant group from this course is smaller in number than the participant groups from the other courses. The Pharmacy cohort is approximately a third of the size of the Medicine group, and half the size of the Paramedicine group. This size difference may have impacted the results even though the gender ratio of participants in this course group is consistent with the other courses.

Closer examination of other demographic factors also illuminated possible reasons for the differing results in the Pharmacy group. For example, 33% of participants from Pharmacy were international students all of whom listed a language other than English as their principal language. This contrasts with Medicine, where all international participants listed English as their first language. Further, the international portion of the Medicine cohort constituted only 17.24% of all Medicine participants. All international participants from Paramedicine (n = 1) also did not identify English as their first language; but this constituted only 7.14% of participants from this course group in comparison to 33% in Pharmacy at the commencement of the first semester. Subsequently, the international Paramedicine student withdrew from the course. As this version of the IRI was designed for use with English speaking students from the United States, the cultural and language diversity of the University of Tasmania students may explain, to some extent, the differences in results.

As with the earlier discussion on the Perspective Taking results, there may be factors to be drawn from these specific findings worth considering in terms of local implications for the current cohort. In this instance, language and cultural differences may influence the results from the subscales of the IRI because of the English language and western cultural basis of this version of the instrument. These differences may also be evident in clinical interactions and related assessments, for example OSCEs in Medicine, and practical placements in Paramedicine and Pharmacy, where social norms and language usage may be different to that with which the student is familiar. This subsequently raises the question regarding if, or how, this should be addressed in the curriculum design.

Since the Perspective Taking subscale measures the tendency to adopt the psychological perspective of another person, it is possible to assert that each of the disciplines might benefit from considering how this may manifest in the clinical setting. Such consideration could lead to fresh and augmented pedagogy and policy. Irrespective of the debate on this issue, the insight provided by the results of this subscale provides an opportunity for both further professional discussions within and between each discipline, and additional research to continue the investigation into the implications of the potential gender differences from this subscale within a clinical setting.

The reverse gender-based trend to that identified in the Perspective Taking subscale is evident on the Personal Distress subscale (see Table 23). In the latter subscale males gained higher scores than females across the three course groupings. Across all course groupings females gained lower scores on the Personal Distress subscale than did males. The Mean scores for females in Medicine, Paramedicine and Pharmacy on this subscale were 10.6, 7.3, and 10.6 respectively, whereas the Mean scores for males in the same groups were 11.0, 12.3 and 12.5. Whilst there is only a small difference between the scores achieved for each gender in the course group Medicine, the difference between male and female Paramedicine and

Pharmacy participants is statistically significant. This subscale "measures 'self-oriented' feelings of personal anxiety and unease in tense interpersonal settings" (M. H. Davis, 1983, p. 114). There were significant gender differences for the Paramedicine and Pharmacy students, however for those studying Medicine the differences were much smaller.

It is important to consider the Personal Distress subscale because 'tense interpersonal situations' are endemic to a range of healthcare scenarios and clinical settings. For example: when a health diagnosis causes anxiety or stress in the patient and/or their families; a road crash trauma situation; an emergency where the first-responders are met with individuals whose behaviour is effected by drugs or alcohol, or other substances; a diagnosis that requires surgical intervention; or where a prognosis is life-threatening or terminal. As situations involving personal conflict and anger certainly occur across the three healthcare professions represented within this study, analysis of this subscale is also vital when examining empathic responding within clinical skills.

Whilst the gender difference is consistent across the three course groupings, there is a particularly large gender difference in the scores on this subscale for participants studying Paramedicine, with males scoring higher than females. This suggests that male participants experience higher personal anxiety when faced with a tense interpersonal situation. This trait could be quite problematic given the role of first-responder in emergency situations. With further research and consultation with paramedic professionals and educators, this trend may be addressed through additional curriculum-based support.

The analyses of the IRI data also returned statistically significant results on the Fantasy and Empathic Concern subscales. In the discussion of these two subscales, where statistically significant results have been identified, excerpts from the qualitative data are included to demonstrate to support the data from the quantitative analysis.

In the development of the IRI Davis (1980, p. 11) noted that the Fantasy subscale "appears to tap the tendency to imaginatively transpose oneself into fictional situations". M. H. Davis (1983, p. 115) also suggested that higher scores on this subscale may indicate that the individual have "a greater tendency to help another person". This trait also forms a link to the Empathic Concern subscale. The three models developed in the analysis of the Fantasy subscale (see Table 30), demonstrated that for this sample, males (n = 12) achieved scores that were consistently lower when compared to females (n = 41). This finding is also supported by the Effect Sizes for Gender on the Fantasy subscale (see Table 29). Given the significance of the effect between genders across all course groupings, the qualitative data provides further illumination. In the qualitative data collection sessions, participants were shown digital footage of a healthcare scenario. This was used as a prompt for a series of questions designed to relate to each of the subscales. For the Fantasy subscale of the IRI, participants were asked if they could imagine a situation where they might feel the same way as the health professional depicted in the scenario. This prompt aligns with the previously-described function of this subscale (M. H. Davis, 1980, 1983).

Figure 75 presents the concept map for the group Fantasy: Gender – Female. This map displays a direct linear relationship between the concepts people, time, talk, feeling and patient. These themes suggest a workplace connection akin to that displayed in the digital scenario presented in the interview. The strong relationship to the scenario that is depicted through the concept map suggests a high relationship to the original focus of this subscale as articulated by Davis (1980). This tendency is reflected in the clear relationships between these concepts and themes. An extract from the interview with participant ID 201625 clarifies this relationship:

> I am a registered nurse and I used to work at <a local hospital> so I think that I've had quite a lot of interaction with patients, in a completely different context but sometimes they don't quite understand and you really have to get a bit of a bond with them and

> make sure that they understand where you're coming from and that they're coming from and you can actually get to the point where you want, you both get what you want, in a comfortable manner.

In this text the participant reflects the relationship they interpreted as being demonstrated in the fictional scenario which in turn supports the quantitative findings.

Figure 78 presents the concept map for the group Fantasy: Gender – Male. This is a smaller number of both themes and concepts than presented in the Fantasy: Gender - Female concept map. The Gender – Male concept map displays a small concept-cluster around 'feel' which is both the most connected theme and the most relevant concept. This concept map suggests that males have an awareness of interpersonal concepts, particularly given the significance of 'feel', however there is nothing depicted in the concept map that suggests a transposition of self into fictional situations, which explains the lower scores for males on this subscale. Similarly there is no evidence of an association with a work or healthcare scenario which may explain the differences highlighted between the two gender groups for Fantasy. An extract from the interview with participant ID 201661 provides clarification:

> I have a friend and he has depression…We have a lot of light-hearted conversation and I'll talk to him like I talk to anyone of my friends but I kind of have that like special consideration so if his not feeling too well, I try making him feel like kind of special and that people care about him and stuff

This excerpt demonstrates the strong influence of the theme and concept 'feel', but there is no evidence of the adoption or transposition into a professional scenario as depicted in the footage and measured by the Fantasy subscale. The "tendency to fantasize about fictitious situations has also been shown to influence emotional reactions toward others and subsequent helping behavior" (M. H. Davis, 1983, p. 114) and is supported by the earlier work of Stotland et al. (1978).

The differences identified here provide an important and valuable point for consideration in terms of the curriculum in undergraduate healthcare education as it highlights an opportunity for additional focus within the learning and teaching design. In addition to curriculum designed to support the development of empathic responding within healthcare curricula, there is also a need to include strategies that mitigate against compassion fatigue and empathic decline. If higher results on the Fantasy subscale suggest increased emotional reactions towards others and the stronger presence of associated helping behaviours, it then follows that female students may demonstrate higher levels of these reactions and behaviours. This may, in turn, leave them more susceptible to compassion fatigue and empathic decline. Again this hypothesis warrants further investigation through future research. The implications of these results for the Fantasy subscale also relate to Dąbrowski's Theory of Positive Disintegration. These relationships will be addressed in the response to Research Question 3.

The Empathic Concern subscale of the IRI assesses " 'other-oriented' feelings of sympathy and concern for unfortunate others" (M. H. Davis, 1983, p. 114). The results of the hierarchical linear multiple regression (see Table 31) suggest that when compared to Medicine students, Pharmacy students gained significantly different scores on the Empathic Concern subscale. This finding however is only evident in Model 2, as the same analysis in Model 3 slightly exceeded the established significance level of .05. The finding depicted in Model 2 however is also supported by the Effect Sizes presented in Table 29 which reveal that for the Empathic Concern subscale across Age, Gender and Prior Tertiary Study, Pharmacy students gained significantly different scores from Medicine students.

Figure 39 presents the concept map for the group Empathic Concern: Course – Medicine. This map displays a number of concept clusters with the largest being around the theme 'feeling'. The two main concepts, 'anxious' and 'worried' are consistent; these are also

emotive and synchronous with the underpinning concepts of the Empathic Concern subscale. An extract from the interview with participant ID 201674 provides context for these results:

> He seemed uncomfortable being touched. He wouldn't meet the paramedics gaze. It is understandable that he would be fixated on his arm, but he also had halting speech and he didn't communicate in a way that I felt was typical…<He was> probably pretty anxious, to have a stranger come to the house and there's this whole sort of thing with his routine. And so, if he does have a condition like autism, I can imagine that would be an upsetting thing.

Figure 45 presents the contrasting concept map for the group Empathic Concern: Course – Pharmacy. The principal theme and concept in this analysis is ‘wrist’. Within this theme there is a concept cluster which includes the themes ‘paramedic’, ‘ambulance’, ‘couple’ and ‘sure’. None of these concepts that cluster around the main theme connect with the intention of the Empathic Concern subscale. These concepts are factual and lacking in an emotional base which provides a notable contrast to the group Empathic Concern: Course – Medicine. An extract from the interview with participant ID 201647 further illustrates these results:

> One of them is a Paramedic and there are two brothers and one of the brothers he just thought he broke his wrist but it's a little strain and he was not able to move his wrist properly, so probably they have called the Paramedics and the ambulance and then he arrived. He had a look he told the kids that it is minor and he asked a couple of questions to make sure that the case is not major and he put the bandage on.

This observation evinces the factual nature of the responses registered from the group Course - Pharmacy. Further analysis of the demographic data for this group reveals that this proportion is also representative of the Pharmacy students who participated in the quantitative data collection. Questions remain as to whether this is also reflected in the total year-group enrolment in the course, and if so, what implications this has for learning and teaching within the discipline. For instance, it is possible that these findings are influenced by the low

participation rate by the Pharmacy course group in the qualitative data collection phase and are not in fact representative of the participants from Pharmacy. The participation rate from students within this discipline is a broader limitation of this study.

Two previous Australian studies (Harper, 2013; Hay et al., 2007) found significant differences on the results of the Fantasy and Empathic Concern subscales of the IRI based on academic ability. In the current study however, all the participants meet the definition of academic giftedness as described in Chapter 2 and as such there is not an opportunity to compare results based on academic ability. This provides an opportunity for future research. Further, Hay et al. (2007) found a gender-based difference in results for the Fantasy subscale. This also supports the results of the current study. This does contrast with the results of Harper (2013), but that study identified a very small sample size as an inherent limitation which may explain the differing results between the 2013 study and those of Hay et al. and the present study.

Those same studies also reported differing results for the Empathic Concern subscale. Hay et al. (2007) found significant differences in results based on both gender and academic ability however both the current study and that of Harper (2013) did not identify a gender-based difference for results on the Empathic Concern subscale. An additional Australian study undertaken by Butrus and Witenberg (2013) also reported a gender difference for the Empathic Concern subscale, so there are inconsistencies across Australian gender-based results for this subscale. It is possible that since Empathic Concern "assesses 'other-oriented' feelings of sympathy and concern for unfortunate others" (M. H. Davis, 1983, p. 114), the current group of participants, irrespective of their gender, display a higher level of Empathic Concern than the general population as evidenced by their application to study in a healthcare discipline. This underlying 'helping' motivation of the participants in the current study may also influence the study results. Given the possible heightened 'helping' motivation of this

cohort of students, those who volunteered to participate in this study may sit at the upper end of this continuum as they gave freely of their time to participate in the study where there is very little inducement to do so outside the intrinsic value of supporting research.

The Perspective Taking and Personal Distress subscales of the IRI did not achieve significant results within the linear multiple regression analyses, however when examined more deeply for Course, by Age Group, Gender and Prior Tertiary Study through the results of the MANOVAs, as depicted in Table 29, there were some significant differences between these groups. For example, when considering participants from the Course group – Medicine, Age Group did have a significant effect on responses to both these subscales. Similarly for participants from the Course group – Pharmacy, Gender had a significant effect on results achieved on both these subscales. For the participants from the group Course – Paramedicine, Age Group had a consistent significant effect across all four subscales of the IRI, while Gender is a significant effect in the results for the Personal Distress subscale. Similarly, the deeper analysis of Course grouping as depicted in Table 29, also illuminates significant effects that merit consideration from an individual course perspective. The group Course – Paramedicine displayed significant effect sizes across 75% of the variable combinations.

In a similar outcome to the latter two IRI subscales, there were not cohort-wide significant findings for the impact of the demographic traits on the Academic Self-Concept subscale of the SDQIII. When more deeply examined by Course grouping, however, there is a significant effect size for Gender in the Course – Paramedicine as displayed in Table 20. When combined with the larger cohort however, this result became submerged and no longer significant.

To summarise, some demographic characteristics demonstrated significant relationships against the subscales of the IRI. This is clearly seen for Gender with regard to the Fantasy subscale, and for Course grouping on the Empathic Concern subscale. Previous Australian

studies raise questions regarding the place of gender in more broadly influencing the results on the Empathic Concern subscale. This requires further investigation and provides an opportunity for future research. The demographic traits examined did not significantly influence the results of the General Academic subscale from the SDQIII.

To further investigate the relationship between empathic responding in undergraduate healthcare students and the relationship between these results and academic giftedness, a study utilising a comparison group of participants identified as typical learners, that is a group of people who had not attended university, would be beneficial. Such a study would assist in determining any differences between the academically gifted cohort and those who were typical. If differences were identified between these groups, this would solidify the argument for identifying healthcare students as academically gifted and highlight the necessity for a deep understanding of gifted education pedagogy in the design and delivery of undergraduate healthcare curriculum and its relationship to clinical skills acquisition.

At this point, these connections can be further illuminated with reference to the relationships between levels of empathic responding and academic self-concept with the clinical skills displayed by students. This is addressed in Research Question 1b.

Response to Research Question 1b

To what extent does empathic responding and academic self-concept predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?

The two principal constructs addressed by this research question are empathic responding and academic self-concept. As outlined above, empathic responding in this study has been measured through the four subscales of the IRI whilst the measure of academic self-concept is a subscale of the SDQIII. These instruments have been subject to substantial evaluation and testing in addition to extensive use through the research community. The reliability and validity data for each instrument were reported in Chapter 3.

After examining the components of clinical skills; and the four subscales of the IRI including the constructs of empathic responding which each aim to measure, the two constructs appear to be connected through an 'other-oriented' focus. While there was not a directional hypothesis associated with this research question, the similarity between the subscales of the IRI and the interpersonal skills portion of clinical skills are indicative of a relational link. Despite this, the correlation analyses undertaken between these subscales and the results for clinical skills acquisition returned non-significant results. The data from the Academic Self-Concept subscale of the SDQIII were also subject to a correlation analysis with the results for clinical skills acquisition, again returning non-significant results.

Whilst the underlying orientation behind this result is open to speculation, the values for each of the subscales were taken directly from the IRI and the SDQIII as completed by the participants. It is therefore reasonable to more closely examine the data for the remaining variable: clinical skills acquisition. Chapter 2 defined clinical skills as bringing together the theoretical biologically-based elements and diagnostic skills of the health disciplines alongside communication and interpersonal skills. The focus in terms of clinical skills is the union of these areas as this is the point of intersection between care-giver and care-receiver.

Supporting this definition Tolsgaard, Kulasegaram, and Ringsted (2016, p. 70) suggest that learning clinical skills frequently "involves a complex mix of diagnostic, behavioural, motor and communication skills that need to be applied in a variety of different clinical contexts". It is this complexity that simultaneously drives its pedagogical importance and challenges its measurements and assessment.

Gaining an understanding of the course and unit structure, including the varying points of assessment across the three discipline areas, was the initial step in understanding the assessment of clinical skills and quantifying this across each course group. Students within each of the participating courses study a different configuration of units, and some students in Paramedicine and Pharmacy may choose to study part-time and in doing so reduce their study load and associated stressors. This is not an option for students in Medicine, where, due to the unit structure, full-time enrolment is mandatory. Across the University of Tasmania study weighted at fifty credit points, which is the equivalent of four standard units, is the maximum study load per semester.

The processes adopted to extract assessment scores for clinical skills acquisition were philosophically consistent between the three courses however the structural and assessment differences between each course may have impacted upon the validity of these data, and increased the possibility of the inclusion of confounding variables in the assessment data. Each of the three courses examined within this study undertake the teaching and assessment of clinical skills in different ways which increased the challenge of extracting the clinical skills assessment methodologies. Pharmacy and Paramedicine each deliver a combination of units weighted at 12.5 or 25 credit points. Some units are purely focussed upon the discipline-specific science, whereas other units deliver a combination of communication skills and associated sciences. Since the combination of skills taught in these latter units appear to match the definition of clinical skills as adopted in this study, the percentage grades awarded

for these units were collected as the measure of clinical skills acquisition and included in the calculations to derive the clinical skills score for each participating student, which was then used in the statistical analyses.

In Medicine, however, the collation of the grades for clinical skills was not as straightforward and therefore raises questions over the statistical validity of the calculations as well as the pedagogical integrity of clinical skills identification and assessment. In this degree programme one all-encompassing unit, CAM101, is taught in the first semester equating to 50 credit points of study. This model is repeated in the second semester with CAM102. All four domains of study are taught within each of these units. As outlined in Chapter 1 the learning domains in Medicines are: Science and Scholarship, Clinical Practice, Health and Society, and Professionalism and Leadership. It is not clear from the unit outline (see Appendix 25) which assessment tasks are directed at each domain, however more detailed information was provided by the staff at the School of Medicine. Specific staff members are assigned responsibility for particular domains of study. The domain or domains against which an assessment task is allocated is identified by the person responsible for marking the students' work. So, by cross-checking the staff member responsible for the assessment of a task, the associated domain can be identified. Clinical skills are taught in Domain 2 which is Clinical Practice. For the purposes of this study each assessment task allocated to a Domain 2 lecturer was extracted, the mark turned into a percentage and the Mean of these grades was calculated and adopted as the score for clinical skills.

Whilst it is unsurprising that there is a lack of uniformity of assessment processes across three discrete tertiary courses, the challenges associated with identifying such a core element of healthcare practise limits the capacity to make conclusive observations. This is identified as a limitation of this study which may contribute to an explanation of the non-significant result on this portion of the analysis.

From the University of Tasmania learning and teaching perspective, and incorporating sound pedagogical practice, it would be advantageous to be able to identify students who may need additional support or coaching in this area of the curriculum to enhance learning outcomes in clinical skills acquisition. This is mandated through the *University of Tasmania Strategic Plan for Learning and Teaching 2016-2020* which states "We need to understand our students, and develop and deliver programs that meet students' academic needs and expectations and ensure access to appropriate support services for a diverse student cohort" (The University of Tasmania, 2016d, p. 3).

The lack of clarity regarding the identification of clinical skills within the varying assessment tasks across all three disciplines provides an opportunity for curriculum redesign that ensures the strategic directions for the University are met. The need for this is amplified in the case of Medicine where there is lack of transparency from the students' perspective regarding how and when clinical skills will be assessed. As outlined in Chapter 2, there is a strong literature base supporting the connection between positive clinical outcomes for patients and the relationship established between healthcare professional and patient. Clinical skills are at the core of this relationship.

A focus on the clinical skills during within the curriculum is particularly important as the University of Tasmania does not undertake pre-admission interviews with students across any of the three participating disciplines. The UMAT, as outlined in Chapter 2, is only utilised in Medicine and is designed to identify skills in critical thinking and problem solving, along with understanding people and non-verbal reasoning. It is a pivotal part of the assessment process prior to students being offered a place in the MBBS as these scores are the only way in which there is any assessment undertaken on behalf of the University, of the interpersonal or communication skills of the prospective student, prior to an offer being made. As a result of this admission process it is possible that students entering these courses

may have skills that are in need of significant development and support, thus it is even more important that there is capacity within the curriculum and assessment processes, to identify students who may be having difficulty with the clinical skills acquisition, and provide additional learning support as required.

Paramedicine sits in a slightly different situation based on the nature of the profession. As emergency-based first-responders, the paramedic is not in a position to establish a longer-term care relationship with their patients. The importance, however, of establishing a rapport with patients who are in an emergency healthcare situation ought not be underestimated. It is equally as vital for students who intend to practise as paramedics that they develop excellence in their clinical skills. Thus the curriculum design must ensure that clinical skills are thoroughly embedded into the Bachelor of Paramedic Practise just as it is within either the MBBS or the Bachelor of Pharmacy.

Further longitudinal investigation into assessment criteria and the trajectories of clinical skills acquisition results across the three courses would allow for more rigorous analysis against academic self-concept, incorporating the BFLPE, and empathic responding measures. These investigations could follow students within the discipline of Medicine into the clinical years of training to further inform the literature regarding empathic decline once the pressures of the hospital environment are experienced.

Further, there is scope for future research to more deeply explore the relationship between empathic responding and academic self-concept to determine whether changes in the identification and assessment of clinical skills may clarify whether or not these concepts are indeed related.

Consideration of student demographics may also enhance the understanding of the variables that may influence clinical skills acquisition. This is addressed in Research Question 1c.

Response to Research Question 1c

To what extent student demographics, specifically Age, Course, Gender and Prior Tertiary Study; predict the acquisition of well-developed clinical skills in first-year undergraduate healthcare students?

The importance of the relationship established by the healthcare professional with the patient through the engagement of their clinical skills has been outlined both in Chapter 2 and in the response to research question 1b. The pedagogy that underpins healthcare curriculum delivery can be enhanced through an improved understanding of the variables that may contribute to a higher skill development in this area.

Initially descriptive statistics were examined to establish a broad understanding of the clinical skills scores across the three discipline areas. Means and Standard Deviations for the four specified demographics were analysed against the clinical skills acquisition scores and reported in Table 32. These data highlighted noteworthy differences in Mean clinical skills scores particularly between the course groupings where participants in Medicine achieve much lower mean scores (68.9%) than do those in both Pharmacy (73.7%) and Paramedicine (83.1%). Substantial differences in mean scores were also noted between genders, with females achieving a mean of 75.4% in comparison with males at 66.4%. Subsequently the hierarchical multiple linear regression analyses were undertaken on these data to determine the amount of variance in scores explained by each variable. Results are displayed in Table 33. In considering the three-step model developed by the multiple regression analysis, step 1 focussed on the variable, gender, which explained only 11% of the variance in clinical skills scores. In a more significant finding, step 2 of the model identified demographic variables that explained 40% of the variance in clinical skills scores. This step incorporated both Gender and Course. Step 3 added Age and Prior Tertiary Study, but these variables did not add significantly to the explanation of the variance in scores.

As identified in the response to Research Question 1b, there is a complex web of potential limitations surrounding the data that provides the raw clinical skills score for each participant. It is possible that here again these factors have affected the results, particularly in terms of the differences between courses, both in terms of identifying what assessment tasks are categorised as contributing to clinical skills acquisition, but also the pedagogical differences embedded within the curriculum design and delivery across the three courses.

Given the 'helping-behaviour' embedded in both clinical skills and the Fantasy subscale of the IRI which Davis (1983) associated with an increase in this trait, it is not surprising that gender was influential in this outcome, especially as females achieved significantly higher scores than males on the Fantasy subscale. With such a large portion of the variance in scores being explained by these two variables there is potential for future research to explore these influences more deeply. Exploration such as this may provide information that could guide revision of course-specific curriculum design. As identified in the response to Research Question 1b, there are also questions regarding the way each course identifies and assesses clinical skills.

In further consideration of the results from the hierarchical multiple linear regression, it is possible that the variables Age and Prior Tertiary Study are conceptually too closely related to each other to be measuring discrete concepts. The consistency within the data relating to these two variables is indicative of this fact. For a student to have undertaken prior study before commencing their current course, they would either be highly academically gifted and have accelerated through a number of years of study, or be an older student. Participants were divided into two groups – those 21 years of age and under, and those who were older than 21. It is likely that students who had undertaken prior tertiary study would also be in the Over 21 group. Those participants who had not completed prior tertiary study, could theoretically have been in either Age category, however given the nature of this participant cohort and the

stringent entrance requirements to gain a place into these particular courses, it is highly unlikely that a mature-aged student who had not undertaken prior study would appear in this cohort of students. The exception to this is Paramedicine, where it may be possible for a person who had been working as a paramedic having undergone vocational training and then decided to undertake further study, to gain a tertiary qualification in the discipline. Another group who may be an exception to this situation is full fee-paying international students. The entrance requirements for these students are complex and beyond the scope of this study, however it is possible that an international student may be over 21 and not have completed prior tertiary study.

To summarise the findings across the three sections of Research Question 1: In response to Research Question 1a, the results of this study suggest that Gender may influence scores on the Perspective Taking and Personal Distress subscales, but particularly on the Fantasy subscale of the IRI with females gaining statistically significant higher scores than males. Davis (1983) suggests that people who score higher on the Fantasy subscale are more likely to engage in helping behaviours. This finding is also consistent with the results from Hay et al. (2007), suggesting that this trait may be worthy of consideration in curriculum design to ensure that the strategic goals outlined in the *University of Tasmania Strategic Plan for Learning and Teaching 2016-2020* are delivered. Further, the Course into which participants are enrolled may influence scores on the Empathic Concern subscale.

The study highlighted areas of concern in the clarity, identification, assessment, and student feedback for clinical skills acquisition across the three participating disciplines, however non-significant correlations were found between empathic responding and academic self-concept with clinical skills acquisition.

In Research Question 1c, the study determined that females achieved a mean score of 75.4% on clinical skills acquisition, compared with 66.4 for males. The hierarchical multiple

linear regression revealed that the variables Gender and Course accounted for 40% of the variance in demographic scores on this variable. It is possible that the differing methods of identifying and assessing clinical skills acquisition across the three undergraduate degrees may confound the result, however this also is worthy of future research.

Response to Research Question 2

To what extent is there evidence of the Big Fish Little Pond Effect across first year healthcare undergraduate students at the University of Tasmania?

The Big Fish Little Pond Effect (BFLPE) (Marsh, 1987; Marsh & Hau, 2003; Marsh et al., 2008) has its basis in the Marsh/Shavelson model of self-concept and the subsequent depiction of academic self-concept which is underpinned by Social Comparison Theory (Festinger, 1950, 1954). Marsh (1987) suggests that students who compare themselves to less able students will develop increased academic self-perception. This may develop when students are in a heterogeneous learning environment such as a high school or college environment during years 11 and 12, being those immediately prior to university entrance. It is through academic self-evaluation and comparison such as this, that the BFLPE has found a home within the gifted education literature. Academically gifted students who undertake their years 11 and 12 in a heterogeneous learning environment are, according to Social Comparison Theory and the BFLPE, likely to develop an increased academic self-perception. Such students are also likely to have an understanding of their own work/effort input and what those inputs provide in terms of academic grades or achievement.

Research has demonstrated that through the BFLPE academic self-concept is negatively impacted by the movement into a homogeneous high ability learning environments (Seaton et al., 2011). That is, academically gifted students who move from a learning environment where they are usually, if not always, achieving grades at the ‘top of the class’, to an environment where they are surrounded by equal-ability peers, are likely to experience the BFLPE. This may entail a disruption of their academic self-concept, sense of self-worth, and confusion regarding the ratio of work/effort input required to achieve high grades. The effect of the BFLPE may have on the students will depend on many personal factors for each student and are beyond the scope of this thesis, however it is vital to understand that where

academically gifted students undergo these changes to their learning environments and academic self-concept, there is potential for significant personal challenge.

In the current study, data was collected in the Student Data Survey pertaining to students' own expectations of their academic performance. Additionally participant's academic results were collected. Through this data it was established whether students' results were equal to, higher, or lower, than their expectation at the commencement of their first year of study. To explore the Australian cultural impact on the BFLPE, a second set of calculations was undertaken on the data, excluding participating students who did not identify as Australian citizens. All the BFLPE data are displayed for each course group in Tables 34, 35 and 36. For the calculations where all participants were included, of the three course groupings Pharmacy students achieved Grade Point Averages that most closely mirrored their personal academic expectations as collected within the Student Data Survey, with only 22.22% of participants not achieving their personal expected academic outcomes. Of the Paramedicine students 28.57% did not achieve their personal expected academic outcomes, however in Medicine, almost half, or 48.28% of students did not achieve their personal expected academic outcomes. The calculations for students who identified as Australian citizens, Pharmacy students again had the most realistic expectations regarding their personal expected academic outcomes, with only 16% not achieving this level. The figures for Paramedicine students did not change as the only non-citizen did not proceed with enrolment and the data was therefore excluded from this part of the study. For domestic Medicine students who are Australian citizens, 50% did not achieve their personal expected academic outcomes, increasing from when the whole participating sample was included.

With consideration to the BFLPE and the associated Social Comparison Theory, the effect on students that this result may have, is likely to be compounded. These students have entered the discipline of Medicine with extremely high ATAR scores and have a clear

understanding of their personal work/effort input required to achieve high grades, however these fundamental traits that students 'know' about themselves come under question as the BFLPE becomes apparent. An extract from the interview with Participant ID 201661, who entered Medicine directly from year 12, provides an insight into this experience from a student's perspective:

> Looking at it from a logistical angle I kind of have suggestions on how they could do it better, a little bit. Like the whole thing is just one unit. That's two units for the whole year. So last year in year 12 I had like four subjects and I could study effectively for each exam and I knew what to expect and I was relatively prepared and it made my study a lot more efficient. Whereas with this year, I've just been doing everything at once and it's kind of hard. So, really I find this year to be really hard. I just need to find my niche in my mode of study…The study requirements are different, everything is different I just have to find out how to study.

In contrast, an extract from the interview with Participant ID 201674 who had not entered the course directly from a heterogeneous learning environment provides a differing view:

> I've never been so pleased to do so poorly I guess. My expectations for myself were pretty low going into this.

This experiential difference is also evident in the qualitative data (Figures 168 – 173). For all participants in the Age – Under 21 group, there were four principle themes evident: expected, thought, harder, and study. For the Age – Over 21 group there were six themes evident and the theme 'harder' did not appear for this group despite it being a significant word in the interview question.

In closer examination of the qualitative data for BFLPE – Course, there is a clear trend in the data that depicts the major pressures faced by participants in Medicine and Paramedicine. For those in Medicine recurring themes in the interviews were the quantity of information and the time pressures demanded by the course were the major themes. This is

evident in the thematic depictions in Figures 174, 175 and 176. For students in Paramedicine a major pressure is the fast-track nature of the course. Despite being cognisant of this prior to admission into the course, this is a significant issue for these students, with ‘break’ and ‘time’ being recurring themes and concepts in Figures 177, 178 and 179. There were insufficient qualitative participants from the Pharmacy group for their data to produce reliable trends in this area.

Combining these data there is evidence of the BFLPE within the students within Medicine who have transitioned into university from year 12. This is replicating the move from a heterogeneous learning environment to that of a homogeneous nature. Students undertaking this transition are highly likely to experience a misalignment of their personal academic expectations and their actual achievement which is evinced through the data in Tables 34, 35 and 36. It is also possible that these students will experience a misalignment between the ratio of work/effort input required to achieve high grades and what they have experienced in the past. The characteristics of gifted learners, including perfectionism as highlighted in Chapter 2, present a unique suite of academic pressures for these students. It is imperative that the University of Tasmania recognises this, and fulfils their duty of care to mediate the potential academic and personal outcomes of the BFLPE, and to provide the necessary support strategies for students.

The BFLPE is well recognised within the gifted education literature and it is within this discipline that Dąbrowski’s Theory of Positive Disintegration is also often featured. The implications of this theory, as it relates to this analysis of clinical skills acquisition, are discussed in the response to Research Question 3.

Response to Research Question 3

To what extent does Dąbrowski's Theory of Positive Disintegration inform the results of this study?

Dąbrowski's five-level Theory of Positive Disintegration is often referenced within the Gifted Education literature. Within the Theory, as Chapter 2 revealed, there are several elements that are of particular relevance to the consideration of clinical skills acquisition in undergraduate healthcare students, including the broader level of development of the individual, the potential influence of the Overexcitabilities and the individual's developmental level in relation to the Syntonic Continuum and what this means for the capacity to experience empathy with another person.

According to Dąbrowski's Theory of Positive Disintegration, the Three Factors of Development (see Figure 4) provide the schemata for an individual's developmental journey. Level I represents an egoistic personality that is motivated by self-interest and is unquestioningly driven by social norms and expectations. There is no evidence of empathy or psychological development (Harper et al., 2017). Levels II, III and IV are those in which the disintegration process is evident. The results of these processes will either facilitate the upward movement of the individual through the levels which involves further engagement with the disintegration process, or catalyse their reintegration at a lower level where there is little or no conflict.

The Syntonic Continuum (see Figure 5) displays the transformation of feelings of syntony through to the emergence and deepening of empathy as aligned with the five levels of development within Dąbrowski's Theory. At Level I syntony is experienced as a sense of gregariousness (Dąbrowski et al., 1970). This, however, is a lower level response without emotional commitment. If there is a conflict or disagreement, the sense of 'group' is easily lost and replaced by aggression. This is 'primitive, temperamental syntony'. Level II brings

‘impulsive, reflexive syntony’ however it is not until the manifestation of Level III that reflective syntony begins to emerge and with this comes a hierarchy of values and the capacity to differentiate between ‘what is’ and ‘what ought to be’ (Dąbrowski, 1996). Embedded within the hierarchy of values is the germination of empathy that manifests through a variety of means including the inclination or desire to help others, demonstrably less selfish actions, a generosity of spirit, and sensitivity to others. It is only as the individual experiences the processes of positive disintegration that multilevelness of development may occur and true empathy can emerge.

This is important when considering the results of the IRI and the implications for recruitment, teaching, and curriculum development within healthcare disciplines. Dąbrowski’s Theory of Positive Disintegration suggests that not all people have the genetic endowment, environmental influences, and those of the Third Factor (see Figure 4). If this is the case, then not all individuals will develop beyond the lower levels of syntonic expression, with the experience of empathy remaining elusive. That said, the question remains whether development can be nurtured or encouraged by enhancing environmental factors through education in clinical skills, and thus increasing the opportunities for people to move into the multilevel experiential state of Level III where empathy may emerge from syntony.

An additional element of Dąbrowski’s Theory of Positive Disintegration that warrants consideration in terms of clinical skills acquisition is overexcitability which, as outlined in Chapter 2, is greater “than average responsiveness to stimuli, manifested either by psychomotor, sensual, emotional (affective), imaginational, or intellectual excitability, or the combination thereof” (Dąbrowski, 1972, p. 303). Chapter 2 presented the case that based on the academic entrance requirements for the degrees in Medicine, Paramedicine, and Pharmacy, students studying in these disciplines be identified as academically gifted. Academic giftedness is defined within the parameters of Gagné’s Differentiated Model of

Giftedness and Talent (Gagné, 1991, 2008, 2013) as the top 10% of a population in any learning domain.

Within Dąbrowski's Theory of Positive Disintegration individuals who exhibit Intellectual Overexcitability "manifest abilities of analysis and synthesis, ask probing questions, and love learning for its own sake" (Mendaglio, 2008a, p. 25). It is therefore a reasonable suggestion that these students who gain entrance into these three undergraduate courses may also exhibit Intellectual Overexcitability. The presence of Intellectual Overexcitability does not, on its own, signal advanced personality development as defined within the Theory of Positive Disintegration. Each overexcitability may manifest in either an "all-inclusive form…[or]…confined form" (Dąbrowski, 1996, p. 73) with the latter being generally associated with lower levels of development and more often occurring in isolation from the other forms. According to Dąbrowski (1996) there needs to be evidence of Intellectual, Imaginational and Emotional Overexcitability for the realisation of accelerated and universal development to occur. Further, the descriptions of Imaginational Overexcitability suggest that individuals exhibiting this would display traits including, but not limited to, inventiveness, capacity for sophisticated verbal expression and visualisation. This overexcitability may also manifest through creativity, fantasy and storytelling (Dąbrowski, 1996). As with all elements of personality, the overexcitabilities are multilevel in nature and manifest quite differently at the different levels of development.

There are strong synergies between the descriptions of Imaginational Overexcitability and the traits measured by the Fantasy subscale of the IRI. In the current study females gained statistically significantly higher scores than males. It is unclear what level of response on the IRI might equate with a manifestation of Imaginational Overexcitability however it may be possible to undertake further research into this phenomenon. If indeed these levels of response to the Fantasy subscale of the IRI do equate to Imaginational Overexcitability, it is

possible that the participants from the group Gender – Female exhibit both levels of Intellectual and Imaginational Overexcitability.

Chapter 2 argued that clinical skills are the point of intersection for theoretical biologically-based elements and diagnostic skills of the health disciplines, with communication and interpersonal skills. In this context the patient- or person-centred approach to care provides the philosophical basis for the manifestation of the clinical skills. It is at the nexus of the communication and interpersonal elements of clinical skills where feelings of empathy and the practical empathic responding manifest. According to Dąbrowski's Theory of Positive Disintegration, as depicted in the Syntonic Continuum (see Figure 5) feelings of empathy do not emerge from the lower level syntony until the latter part of Spontaneous Multilevel Disintegration which is Level III. The presence of Emotional Overexcitability is also necessary for the emergence of empathy (Dąbrowski, 1973, p. 173). So, it is possible that if empathy is being displayed within the suite of clinical skills, it is likely that those same students are also experiencing Emotional and Intellectual Overexcitability, and possibly, based on the results of this study, Imaginational Overexcitability if the student is female. Evidence of empathy in clinical skills would also indicate that the students may be functioning at a level of personality development around Level III. The overexcitabilities are also essential to the Inner Psychic Milieu (see Figure 4) and the developmental dynamisms which both indicate a developmental level of around Level III.

If students are not displaying all these elements, they may still be in a developmental phase. Their development may be supported through curriculum-based initiatives or support through other parts of their lives. Dąbrowski also notes that within the parameters of the Theory of Positive Disintegration not all people will move past the lower two levels of development. This has significant implications for those in care-giving professions, as

without the capacity to move to Level III, empathy proper is not possible, rather feelings based in the experience of syntony will be manifest which may not facilitate higher order clinical skills development, and then potentially impact the clinical outcomes for patients. With reference to Dąbrowski's Theory of Positive Disintegration, such development as is required for the emergence of empathy is based on progression through non-ontogenetic levels; that is it is not tied to age-based maturation. Dąbrowski (1996, p. 65) notes that even the "transition from level I to level II is rare and difficult. It is possible only if there are some nuclei of disintegration present in the developmental potential."

The true manifestation of empathy however again invites questions with regards to the issues of compassion fatigue and empathic decline. If students have developed personalities to the extent that true empathy is emerging, then they are also likely, although not necessarily discreetly or conclusively, to be displaying evidence of overexcitabilities. Whilst overexcitabilities manifest differently at the varying levels of development it is still possible that some of these students may be more sensitive to the circumstances in which patients find themselves. This was also reflected in the discussion of the Personal Distress subscale results. An understanding of the levels of development within Dąbrowski's Theory of Positive Disintegration along with a variety of pedagogical strategies with may aide in alleviating or minimising the effects of these phenomena, thus improving the clinical skills acquisition in healthcare students. Suggested strategies would include those to support of students in enhancing their self-awareness to feelings and tendencies associated with compassion fatigue and empathic decline.

The BFLPE manifests as a result of a challenge to the academic self-concept of a student specifically when that self-concept has been established through the achievement of academic success in a heterogeneous learning environment. As the development of self-concept in this way has its foundations in Social Comparison Theory (Festinger, 1950, 1954),

an individual is measuring themselves against societal norms, expectations, and standards, even though the social group providing those reference points is based in a school environment.

When reflecting upon the levels of development within Dąbrowski's Theory of Positive Disintegration, the act of social comparison such as that which underpins the establishment of the self-perception that leads to the BFLPE is based on behaviours that fit with the description of Level I. In such a situation normative behaviours and expectations are measured against the group norms, such as those established within a heterogeneous classroom or school. Students in this situation, who later become healthcare students in the tertiary setting, are likely to be high achieving or academically gifted learners and sit towards the 'top of the class' and may well be rewarded, both in the school setting and in the home, for these achievements. Academic achievement becomes an expectation, based on the social microcosm in which the student dwells and similarly is integrated into the student's sense of self. In this way achievement becomes and unquestioned expectation and norm and is also correlated with a particular degree of study effort. That is, the input of a particular amount of academic 'work' equals a consistent academic reward in the form of high grades, which brings with it social status and acknowledgement. If this scenario is occurring for a person operating at Level I there is no accompanied reflection or internal questioning, only a measurement of self against the societal norms and expectations, along with an acceptance and adoption of the praise and acknowledgement that comes with achievement. It is not, however, a *fait accompli* that all students entering undergraduate healthcare courses will operate at a level of development akin to Level I, however those who experience the BFLPE are more likely to be initially functioning at a lower level of development.

When students experience the BFLPE they suddenly experience the self in a new light, where elements of their self-definition come under scrutiny and question, potentially in a

cyclical response with and to a change in academic self-concept. In this way the BFLPE may impact the academic self-concept, but also the changed academic self-concept may perpetuate the BFLPE. In some students, depending on their First and Second Factor traits, along with their current level of development, this may also trigger a disintegrative experience, as described within Dąbrowski's Theory of Positive Disintegration, particularly with reference to the dissolving dynamisms (see Figure 4). As outlined in Chapter 2 every individual's experience with personal growth and the discovery of the authentic self through Dąbrowski's Theory of Positive Disintegration is unique, however the levels of development and the components of Developmental Potential are clearly described and are traversed by all people who move beyond Primary Integration.

Students who experience the BFLPE may well require sources of support both from within and without their university course. Staff, peers and family members may all witness the impact of the BFLPE on the student and potentially the individual's journey through the levels of development.

An understanding of Dąbrowski's Theory of Positive Disintegration can provide meaningful insight into the results of this study, as outlined above, and has highlighted areas within the healthcare curriculum that will benefit from further development in order to fully support students as they acquire the clinical skills necessary to be empathic and effective in the delivery of healthcare to people at their most vulnerable.

Conclusion

Healthcare education in the modern era has evolved along a trajectory based upon clinical practices of the past, embedded with evolving scientific scholarship. Whilst these elements are vital contributors to the training of future healthcare professionals, this unchanging educational equation has continued, in Australia at least, to establish cultural and pedagogical practices that do not fully place the student-as-learner at the centre of the learning and teaching relationship.

To explore this assertion through deeper examination at a local level, this study explored the relevance of gifted education pedagogy in clinical skills acquisition in first-year undergraduate Medicine, Paramedicine and Pharmacy students at the University of Tasmania, Australia. The study has clearly demonstrated that students studying within these disciplines meet the nationally accepted definitions of academic giftedness which in turn recognises, necessarily, the relevance of gifted education pedagogy in the analysis of clinical skills acquisition in undergraduate healthcare education.

Elements of gifted education pedagogy, in this case academic self-concept and the Big Fish Little Pond Effect were considered alongside student demographics, in their impact upon the acquisition of well-developed clinical skills in students from these disciplines. There is evidence of the Big Fish Little Pond Effect within the student cohorts who participated in this study. There were a considerable number of students across all disciplines who did not achieve their own expected academic levels. This is particularly prominent in Medicine where almost half of all participating students expected to achieve higher grades than they actually did. An understanding of this pedagogical phenomenon, based on the scholarship of gifted education, is vital for both the academic outcomes of these students and their personal health and wellbeing. This finding again reinforces the importance of a cultural shift in this discipline.

Results from this study have also demonstrated that gender predicts levels of empathic responding in undergraduate healthcare students; and that course of study (Medicine, Paramedicine or Pharmacy) is related to levels of Empathic Concern demonstrated by students. Age and participation in Prior Tertiary Study did not predict levels of empathic responding. The vital importance of the relationship between the healthcare professional and the person for whom they provide care is clearly articulated within the academic literature. It is therefore negligent to ignore the complexities of empathy and rapport building and their relationship to academic giftedness. Whilst measures used in this study did not reveal a relationship between academic self-concept and empathic responding with the acquisition of well-developed clinical skills in first-year undergraduate healthcare students, there was however, a relationship between the Course and Gender of participants and the level of clinical skills acquisition achieved.

This study has determined that the definition, identification, and clarification of pedagogy underpinning the learning, teaching, and assessment practises of clinical skills across all undergraduate health disciplines is of paramount importance. Without improvements in these areas there is diminished opportunity to provide clarity of learning outcomes and student feedback which lead to the consequent improvements in clinical skills in beginning healthcare professionals as they graduate into providing person-centred health care.

Dąbrowski's Theory of Positive Disintegration, when overlayed across the results of this study, identifies further relevance and provides deeper insight into the development of empathy and the capacity for other-oriented behaviours. The Theory of Positive Disintegration provides a framework for pedagogical development and understanding, that will support students as they engage with the matrix of biological science-based knowledge

combined with the care-giving, relationship-based focus of person-centred care, that are the clinical skills.

Therefore, it is with an increased understanding of the relationship between elements of gifted education pedagogy, specifically academic self-concept, the Big Fish Little Pond Effect, and Dąbrowski's Theory of Positive Disintegration, that those people with the capacity and responsibility to support undergraduate students will be better equipped to do so; and in turn contribute to the increase of clinical skills acquisition in undergraduate health care education. Whilst there are clearly limitations to this study, particularly in terms of the small sample size, the results unequivocally point to the need for further exploration of these questions and new, pedagogically-driven approaches to curriculum design and delivery in all aspects of best practise in the clinical skills.

This thesis introduces and explores a new way of considering undergraduate healthcare education: one that acknowledges the academic giftedness of students within its disciplines and advocates the place of this pedagogy at the centre of new curriculum considerations. It places students at the centre of learning. In a reflection of broader pedagogical changes in the tertiary sector, the policy and curriculum reform presently occurring within the University of Tasmania, as outlined in Chapter 1, has been driving a new model of educational delivery. This renewal and transformation is designed to also respond to the needs of both students and the broader society (The University of Tasmania, 2016e). In doing so, the fundamental educational premise that places the student at the centre of learning becomes a recognised imperative that is championed by the university. Further, as previously outlined, the World Health Organization mandates a person-centred care approach to healthcare. In both these scenarios the educator and clinician/practitioner, who may indeed be one-and-the-same, must step away from the spot-light and acknowledge the centrality of others. In this way, there

must be a shifting of power and a contemporising of pedagogy to appropriately respond to the learning needs of students.

At the core of this thesis is the suggestion that within undergraduate healthcare education, the student-at-the-centre approach must be extended beyond what is current and comfortable. This thesis calls for a mandate that heralds a deeper transformation and considerable paradigm shift whereby students are identified as academically gifted, and with that recognition comes the cognisant and professional adoption of gifted education pedagogy into curriculum design and delivery. This is a new and vital paradigm shift within healthcare education with global implications, which has the potential to change the educational and professional landscape for students, educators, clinicians, and patients of the future.

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Appendices

Appendix 1: Reproduction authority from the *Roeper Review*

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2/7/2017

Amanda Harper
PhD Candidate
School of Medicine
University of Tasmania
Australia
amanda.harper@utas.edu.au

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Roeper Review (In press)

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Appendix 2: Human Research Ethics Committee documentation

Social Science Ethics Officer
Private Bag 01 Hobart
Tasmania 7001 Australia
Tel: (03) 6226 2763
Fax: (03) 6226 7148
Katherine.Shaw@utas.edu.au

HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

7 October 2014

Dr Christine Clifford
School of Medicine
Private Bag 27

Student Researcher: Amanda Harper

Sent via email

Dear Dr Clifford

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: **H0014476 - Paving the Practical Pathway: The Place of Gifted Education Pedagogy in Undergraduate Clinical Skills Acquisition**

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 7 October 2014.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.

5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. Failure to submit a Progress Report will mean that ethics approval for this project will lapse.

6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Katherine Shaw
Executive Officer
Tasmania Social Sciences HREC

Appendix 3: Paving the Practical Pathway Information Sheet

School of Medicine
Faculty of Health
Hobart TAS 7000, Australia
Phone: +61 3 6226 2678
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www.utas.edu.au/medicine
HREC no. H00-14476 Valid to October 7 2018

Paving the Practical Pathway: The place of gifted education pedagogy in undergraduate clinical skills acquisition

Information Sheet for participants

1. Invitation

You are invited to participate in this study that is being conducted in partial fulfillment of a PhD for Amanda Harper under the supervision of Dr Christine Clifford and Professor John Burgess, School of Medicine, University of Tasmania.

2. What is the purpose of this study?

This study will consider the ways in which academically gifted students learn, with a particular focus on the development of empathy (understanding and responding to another person's situation) and the Big Fish Little Pond Effect (where students move from a mixed-ability setting to a group of high-achievers). The study will compare this knowledge with the methods used to develop clinical skills in undergraduate medical students. The aim of this study is to improve the development of clinical skills acquisition as students progress through their undergraduate degree.

3. Why have I been invited to participate?

You have been invited to participate in this research as you are in your first year of an undergraduate Medical, Pharmacy or Paramedic Practice degree.

Involvement in this study is completely voluntary and there are no adverse consequences for declining to be involved. All data from participants will be de-identified and information collected within the study will remain anonymous.

4. What will I be asked to do?

If you decide to be involved, there are two parts to participation:

Participation in the study involves completing a survey that has three components: the Student Data Survey, which collects basic demographic data, the Self-Description Questionnaire III which addresses self-concept; and the Interpersonal Reactivity Index which focuses on empathy. It is anticipated that this would take approximately 20-25 minutes.

The second part of the study is participating in a one-on-one interview with Amanda, from the research team. This would be scheduled at a mutually convenient time in the latter part of the year, take around 25 minutes and focus on clinical skills.

The research team will also collect ATAR, academic results, GPA and/or UMAT scores from the School, if required.

5. Are there any possible benefits from participation in this study?
Through involvement in this study, participants will have the opportunity to reflect on how they learn and about some of the potential challenges associated with a learning environment that is both different from their past experiences and where there is not a mixed ability grouping. It is hoped that this will improve the participants' clinical skills acquisition.

6. Are there any possible risks from participation in this study?
Whilst there are no foreseeable risks with this study, the UTAS counselling staff are available for UTAS students on (03) 6226 2697. Other students can access the Mental Health Hotline on 1800 332 388 or Lifeline on 1311 14 for further advice or support.

7. What if I change my mind during or after the study?
Participants are free to withdraw at any time, and you can do so without providing an explanation. Participants have the option to request their data be removed from the research within 18 months from their consent to participate.

8. What will happen to the information when this study is over?
Data will be securely archived for potential use in future studies or collaborations.

The data from the Self Description Questionnaire III will be de-identified and recoded, to be anonymously included in an international database of results.

9. How will the results of the study be published?
The results of the study will be published in the associated doctoral thesis and any subsequent journal publications. Participants will not be identifiable in the publication of results.

10. What if I have questions about this study?
If you have any questions regarding this study you are welcome to contact any of the research team:

Ms Amanda Harper: amanda.harper@utas.edu.au
Dr Christine Clifford: +61 3 6226 4887 or Christine.clifford@utas.edu.au
Professor John Burgess: J.R.Burgess@utas.edu.au

This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on +61 3 6226 6254 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number HOO-14476

This information sheet is available for you to keep. If you wish to participate in this study, please click on the link below. This will direct you to the consent sheet and the online survey. Consent will be implied by completion and submission of the surveys.

www.thislinkwilltakeparticipantstothelimesurvey.pretend

Appendix 4: Paving the Practical Pathway Consent Form

School of Medicine
Faculty of Health
Hobart TAS 7000
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Phone: +61 3 6226 2678
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www.utas.edu.au/medicine
HREC no. H00-14476 Valid to October 7 2018

Paving the Practical Pathway: The place of gifted education pedagogy in undergraduate clinical skills acquisition

Participant Consent Form: Undergraduate Medical, Paramedic Practice & Pharmacy Students

- I agree to take part in the research study named above.
- I have read and understood the Information Sheet for this study.
- The nature and possible effects of the study have been outlined.
- I understand that participation in the study involves responding to a survey that has three components: the Student Data Survey, the Self-Description Questionnaire III; and the Interpersonal Reactivity Index. I also understand that there is a one-on-one interview in the latter part of the year. I understand that participation involves no foreseeable risks.
- I understand that all research data will be securely stored on the University of Tasmania premises/servers. Data will be securely archived for potential use in future studies or collaborations.
- I give permission for the researchers to collect my ATAR, academic results, GPA and/or UMAT scores from the School, if required.
- I understand that the data from the Self Description Questionnaire III will be de-identified and recoded, to be included in an international database maintained by Professor H. Marsh, the author of the SDQ III.
- Any questions that I have asked have been answered to my satisfaction.
- I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of research.
- I understand that the results of the study will be published so that I cannot be identified as a participant.
- I understand that my participation is voluntary and that I may withdraw at any time without any effect. If I so wish, I may request that any data I have supplied be withdrawn from the research within 18 months of my consent to participate.

Participant Consent will be implied by completion and submission of the following surveys.

Appendix 5: Original and reformatted version of the IRI

INTERPERSONAL REACTIVITY INDEX

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL				DESCRIBES ME VERY WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me. (FS)
2. I often have tender, concerned feelings for people less fortunate than me. (EC)
3. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)
4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)
5. I really get involved with the feelings of the characters in a novel. (FS)
6. In emergency situations, I feel apprehensive and ill-at-ease. (PD)
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (FS) (-)
8. I try to look at everybody's side of a disagreement before I make a decision. (PT)

9. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)
10. I sometimes feel helpless when I am in the middle of a very emotional situation. (PD)
11. I sometimes try to understand my friends better by imagining how things look from their perspective. (PT)
12. Becoming extremely involved in a good book or movie is somewhat rare for me. (FS) (-)
13. When I see someone get hurt, I tend to remain calm. (PD) (-)
14. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT) (-)
16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)
17. Being in a tense emotional situation scares me. (PD)
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)
19. I am usually pretty effective in dealing with emergencies. (PD) (-)
20. I am often quite touched by things that I see happen. (EC)
21. I believe that there are two sides to every question and try to look at them both. (PT)
22. I would describe myself as a pretty soft-hearted person. (EC)
23. When I watch a good movie, I can very easily put myself in the place of a leading character. (FS)
24. I tend to lose control during emergencies. (PD)
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. (FS)
27. When I see someone who badly needs help in an emergency, I go to pieces. (PD)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

(PT)

NOTE: (-) denotes item to be scored in reverse fashion

PT = perspective-taking scale

FS = fantasy scale

EC = empathic concern scale

PD = personal distress scale

A = 0

B = 1

C = 2

D = 3

E = 4

Except for reversed-scored items, which are scored:

A = 4

B = 3

C = 2

D = 1

E = 0

UTAS Surveys

Paving the Practical Pathway - 2016

This survey is part of a PhD project that will consider the ways in which undergraduate healthcare students learn, with a particular focus on the development of empathy (understanding and responding to another person's situation) and the Big Fish Little Pond Effect (where students move from a mixed-ability setting to a tertiary setting).

The aim of the project is to help students improve their clinical skills as they progress through their undergraduate health care degree.

Interpersonal Reactivity Index

* I daydream and fantasize, with some regularity, about things that might happen to me.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

* I often have tender, concerned feelings for people less fortunate than me.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

* I sometimes find it difficult to see things from the "other guy's" point of view.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

* Sometimes I don't feel very sorry for other people when they are having problems.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

* I really get involved with the feelings of the characters in a novel.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

* In emergency situations, I feel apprehensive and ill-at-ease.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well

I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I try to look at everybody's side of a disagreement before I make a decision.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I see someone being taken advantage of, I feel kind of protective towards them.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I sometimes feel helpless when I am in the middle of a very emtional situation.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well

I sometimes try to understand my friends better by imagining how things look from their perspective.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

Becoming extremely involved in a good book or movie is somewhat rare for me.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I see someone get hurt, I tend to remain calm.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

Other people's misfortunes do not usually disturb me a great deal.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well

*

If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

After seeing a play or movie, I have felt as though I were one of the characters.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

Being in a tense emotional situation scares me.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I am usually pretty effective in dealing with emergencies.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I am often quite touched by things that I see happen.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I believe that there are two sides to every question and I try to look at them both.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I would describe myself as a pretty soft-hearted person.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well

When I watch a good movie, I can very easily put myself in the place of the lead character.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

I tend to lose control during emergencies.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

When I see someone who badly needs help in an emergency, I go to pieces.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

*

Before criticizing somebody, I try to imagine how I would feel if I were in their place.

	Does not describe me at all	Does not describe me very much	Neutral	Describes me a little	Describes me very well
	○	○	○	○	○

Appendix 6: Student Data Survey

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HREC no. H00-14476 Valid to October 7 2018

Paving the Practical Pathway: The place of gifted education pedagogy in undergraduate clinical skills acquisition

Student Data Survey

Student ID No: .....

University: .....

Degree being undertaken: .....

Gender: .....

Country of citizenship: .....

Country of birth: .....

Primary spoken language: .....

Age as at 1 February, 2015: .....

Highest previous level of study: .....

What was your ATAR/University Entrance Score: .....

At which school did you undertake your pre-tertiary study? Please indicate the country/state/county:

.....

Are you first in your family to attend University? .....

What extra-curricular activities (both recreational and employment) did you undertake whilst completing your highest previous level of study? .....

.....

.....

.....

Approximately how many hours per week did this/these activities take? .....

Approximately how many hours per week did you study? .....

What extra-curricular activities (both recreational and employment) are you planning to undertake this year? .....

.....

.....

Approximately how many hours per week do you expect this/these to take? .....

Approximately how many hours per week do you expect to study? .....

Did you expect to get a place in your degree? Yes/No (please circle your response)

Do you identify as Indigenous? Yes/No (please circle your response). If yes, could you be more specific, please .....

Do you bring a laptop or tablet device to lectures/classes? Yes/No (please circle your response). If yes, please specify in which classes you use it. .....

.....

Did gaining a place in your degree change the way you felt about your own academic ability? Yes/No (please circle your response). In one or two sentences please elaborate on this change. .....

.....

.....

.....

.....

What do you predict your average percentage grade to be at the end of this current semester? Please specify a number. ..... %

If the scores of all students were ranked in order, where in your class do you predict your marks will fall? Please circle the answer you believe is most appropriate:

In the top 10%
In the top 20-10%
Above average, but not in the top 20%
About average
Probably a bit below average

Please list the subjects and marks you achieved in your most recent year of study:

.....

.....

.....

.....

.....

.....

.....

.....

If more space is required, please use the back of this page.

Thank you for taking the time to participate in this research.

Amanda Harper, on behalf of:

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Appendix 7: Semi-structured interview script

Interview Guide
Understanding the development of clinical skills

Hi! Come on in ☺ Thank you for coming along today. I'm Amanda … can I just check your name?
<Pause, wait for response>
Now, just to let you know…as I have to type up this interview, I'd like to record it. Is that okay with you?
<Pause, wait for response>
Fantastic, thank you!
<begin recording>
Okay...so today is <state date> and the time is <state time> and I'm here with <state student's name>.
So, to start with I'm going to show you a short video clip of a health care scenario. It runs for just over 5 minutes…and then we'll have a chat about it.
<play clip>
Okay, can you give me a quick summary of what's happening in the clip and who the various people are?
<Pause, wait for response>
Can you recall the condition that Josh, the patient, suffers from?
<Pause, wait for response>
How did you know this?
<Pause, wait for response>
How do you think that Josh is feeling at the minute? (IRI: Empathic concern)
<Pause, wait for response>
And what about the health care professional? How do you think they're feeling having encountered this situation? (IRI: Perspective taking)
<Pause, wait for response>
Can you imagine, a situation…not necessarily a health care one, although it can be…where you might feel the same way as the health professional? <Pause, wait for response> Could you describe it for me please? (IRI: Fantasy)
<Pause, wait for response>
As a general rule, how do you do when you see other people who are really distressed? How well do you cope with this?
<Pause, wait for response>
Do you have any personal strategies that you use to help you in these kinds of situations? And if you do, could you tell me a little about them? (IRI: Personal Distress)
<Pause, wait for response>
Awesome, thank you for sharing this…Now, we'll just chat briefly about your course. Are you enjoying it? (Academic Self Concept)
<Pause, wait for response>
Is it living up to your expectations?
<Pause, wait for response>
And how are you tracking with your results? <Pause, wait for response>
When you applied for the course, did you expect to find the study easier or harder than you are?
<Pause, wait for response> (BFLPE)

Awesome…well, thank you heaps for sharing all this information. I really do appreciate it.
Do you have any questions regarding the project?
On the information sheet, there are some names of people you can talk to if there's been anything that we've talked about that you think you'd like to talk over with someone. Do you still have a copy of the information sheet or would you like me to email you another one?
<Pause, wait for response>
Okay, well, thank you so much again...I really appreciate this...it was great to meet you!
<end of session>

(Note: text in blue points to the subscales of the quantitative data that is being addressed within the qualitative data)

Appendix 8: Sample interview transcripts from Medicine, Paramedicine and Pharmacy

Medicine:

It's 19 September at 12:09 and I'm here with <student name> who is a first-year medical student so to start with we are going to watch a clip and then have a chat about it.
sure.
Play video.
So, can you give me a bit of a rundown on what's going on in the clip and who the people are?
So, by the looks of it the paramedic has come to the house and the brother has answered the door. It could have may be been the brother who has called the paramedic and his come to see his brother who has injured his wrist when he was doing it bench-press and bent his wrist back. So he's probably sprained his wrist. The paramedic is going through the general procedure, checking him to allergies and medications and things like that, like we are being taught in medicine at the minute when we are taking a history. He treats it and throughout the process he is making sure that he is comfortable and he's okay because he seems a little anxious and a bit worried about how is going to do his daily routine and he also seems a little bit in shock in terms of his speech I guess because he is in quite a pain as well. Then the paramedic puts a splint on, offers to call his parents to explain what has happened if that's easier for him and how to manage it.
Now, there's something else going on with Josh as well is the sprained wrist. Any idea what that might be?
Does he maybe have sort of a speech impediment or something?
Possibly. And what makes you think that?
Just in the interaction he was a little bit… You could see that the paramedic… There was a little bit of loss of communication he started a bit when he said things and I think you got a little bit lost.
How do you think Josh is feeling?
Very worried.
That's the patient.
Yeah, Josh. Josh is feeling very worried and is very anxious. He looks like he understands what's going on though, but quite worried about his wrist and is in a lot of pain as well.
And what about the paramedic? How do you think he is feeling having walked into this situation?
His probably a little bit… He seems quite comfortable but he didn't ask about the parents until later on and that was something you might pick up on earlier on because it's only the boys there and they hadn't told that the story about the bench-press. You don't know if that's the full story because the parents weren't there.
So do you think he was comfortable was something that he was particularly considering in his interactions with Josh?
He seemed pretty comfortable, although he perhaps didn't seem that he was aware of the speech impediment, or if he was he was overlooking it and focusing mainly on the injury. He was treating him for his sickness rather than anything else. He just spoke to him normally I think.
Can you think of a situation maybe where, not necessarily a health care one, where you've been in a situation where you've met some people or been with people or people of come to you or whatever, where there's something else going on but you have to try and overlook that and stay focused on one thing?

<Someone I know> looks after an autistic girl who is her best friend's daughter and she is 22. So she is older than me. I met about a year ago and in the first initial stages of meeting her I was probably a little overwhelmed because her personality is quite overwhelming and not having ever interacted with people who are autistic before, that was new to me but the more or I spoke to her and became interested in her interests and what she likes, she likes all these different DVDs and we used to play on the Wii. The more we did that the more I noticed that we started to connect more on a personal level and he started to not notice the autism that much as well. Even the little things that are influenced by her autism I learnt to cope with them a little bit better. To start with she would look off to the side of you wouldn't talk to face on and that might be something to do with the social comfort but the more she talked to me she started to make eye contact with me and that's where you know she starts to develop that relationship. She was more comfortable and she used to say I was her best friend and things and it's so important to treat her with respect and things. Her intellectual ability was quite young like maybe around 10 and 12 years old, however she knew she was older than me and it was important to respect her are not treated like a child, just like a friend… Like anyone. Her interests were around that age but she is still 22 and she has good competency function.
That's fantastic example! Awesome! Brilliant, that's really interesting, thank you. And I was so interested, I lost track of what my next question was. Okay, as a general rule, when you encounter someone who might be really distressed, how do you cope with that?
I think you just try to look at what's worrying them first, but also look at what's… Depending on what situation is.
I actually mean you personally, not theoretically. How do you respond?
Cope? When someone is distressed? I'd just approach them and see what's worrying them and find out what is the best way that they can come down. Sometimes when people are distressed it's easier just to ask them what's happening and try to speak in a calm and clear voice.
Do you have any strategies to monitor your own emotional reaction?
Probably good to think about. I could probably think about when I interact with her, she… The girl <Someone I know> looks after… Can get quite emotionally worked up over things and that's not usually in relation to anything it's just that she is emotionally worked up and, I probably don't handle it the best way I could, because it's always a bit overwhelming the way I have watched my mum do it is that she will go okay and then she falls back into structure with her to help her overcome it. She tries to make sure that <the girl's> feelings are accommodated and also tries to get back into routine. It's usually when my dog barks and the loud noise freaks her out and she screams. So will move the dog out of the room and then will just focus on colouring in and try and focus on something else. It depends I guess on the person and what they're being distressed by. But in terms of your own emotions I think you probably just you just try to focus on the person.
So can you think of an example where you've got upset about something and you have to try and work through that?
There's probably a few examples, probably just with exams and things where I get distressed.
Well, they are distressing.
And probably just emotional things that occur around exam time and you have to sort of just take a step back and use self-care methods for yourself and prioritise and order what's most important, especially around exams. What's most important is looking after yourself and sometimes when your friends want to hang out and you can't, you've just got ago and study and do what you have to do. A lot of people say you put your doctor hat on. It's sort of like a similar thing you know, when you have a stressful situation you put your doctor hat on in you go into it and work through it and then afterwards you are reflecting about it.
Okay, that's really interesting.

Yeah, I think in terms of the time, in a distressing situation it could be quite stressful for you and a lot of people sort of emotionally detach themselves and then reflect afterwards. It's a coping mechanism.
That's perfect and that's just the kind of thing I was trying to find out about. That's really good, that's excellent. Okay, we're going to change tack a little bit and I just want to reassure you that I'm not on staff at the School of Medicine, that this is all totally confidential and none of it goes back to the school. How are you enjoying the course?
I am loving it definitely. It's probably the most fun I'm having it in terms of study. I definitely say I'm really enjoying it. It's very stressful in terms of workload, but I definitely say that is not a day that goes by when I'm not enjoying it.
That's fantastic. Wow. That's really cool. So it is living up to expectations then?
Yeah, and every day that you're in it… Because I didn't believe I would get in, you see how much of a privilege it is to be in the course and to be around such a wonderful, a really good group of people as well.
I actually completely get that. I can totally relate to it. When we're done tell you a small story to share. So a personal question. How you tracking with your results?
Pretty… Like I'm on a good level. I haven't failed anything and I haven't just passed although I've just passed one thing. In a general sense am consistent, which is probably quite good considering how stressful everything has been with first you medicine. I'm quite happy with how I'm going, but I'm constantly setting academic goals for myself, wanting to get just a bit higher but overall I'm pleased with how I'm going.
Fantastic. So, when you applied for the course did you expect to find the study easier harder or about the same?
I think I thought it was going to be harder but I wasn't sure in what way I would find it difficult and the biggest thing for a lot of us first years is structuring our study methods to cope with the workload. In the past, when I was in school, I used to be our will to come home and look at my thing and I used to be up to get everything done, I think. And in medicine, you can't get everything done. You just have to sort of prioritise what you can do and look at what's most important and trying get everything done. Some lectures you can't put as much time into as you would like because you've got 10 other lectures to do, but is impossible to cover everything equally, I think you can do well.
All right that's all of the questions I had for you.

Paramedicine:

So just to start with all do a time and date stamp. So it's 9:30 and it's 5 November no 4th of November and I'm here with <student name>. So to start with I'll show you a short video clip. It runs about five minutes and then we'll have a chat about it.

Okay can you give me a quick summary of what was going on in the video and who the people are?
So there was a guy who I am assured me was a paramedic a young guy, the child was probably 16 had injured his wrist. He never actually said it was his brother but it was a guy who I thought it was his friend but then the paramedic kept saying oh your brother, so I assume it was his brother.
Yet that was about it. Can you recall the condition Josh suffers from?
No
There something else going on. So Josh was the guy with the sprained wrist… So this something else going on with Josh. Have you got any ideas what that might be?
He has an anaphylaxis pen but that was all I really picked up. He was pretty quiet but I guess that's what you'd be like if you'd injured you wrist maybe.
Probably a bit so I would say. Okay, so he said he was quiet… was there any other… Can you gauge any other thoughts about how we might have been feeling other than quiet?
He wasn't really engaging with the paramedic, like even when he was asking questions, he was kind of looking at his brother almost like waiting to see if he had any questions. Some of it seemed like he wasn't in that much pain… I thought he might have questioned like are you sure I'd like to stay at home? But he was happy to be told that you're fine.
So what do you think about how the health care professional, the paramedic, was doing? Do you think he did a good job?
It was interesting watching it and comparing it to the scenarios that we have to do. I picked up on things that he is said that I would have got into so much trouble with flood done that. Like you didn't finish any of the surveys, like he was asking about the pain. We have this thing it's OPQRST, they'll stand for things like O is for onset and so on and an agency did a couple but he didn't get through the whole thing and same with allergies we have an acronym called sample, which is signs and symptoms and the a is allergies and the M's medications and he only got a little bit of that too. And he didn't actually finish it, so from that it was interesting. Given that his first complaint was pain we had taught that if they are in pain you offer the option of pain relief even if you think that they are faking it, because if they are actually in pain and us having done a whole unit on fractures… If you suspect it's a fracture at all then you normally tell them to go to the hospital you don't have to take them to the hospital but you tell them to go. Because technically we can't tell if it's a fracture even though everything else might look like a sprain you might get a fracture in you just can't tell without an extra.
Yeah sure.
So I thought it was interesting that he said leave to 3 days. I don't know it was I'm still a first-year but I think everything is really wrong. If it was me I'd have said like stay at home and obviously you're fine at home. I mean if he was in agony aunt taken to hospital but like if you come with me now you can sit in the waiting room for two or three hours maybe even wait for mum to come home and then go to the hospital but I would definitely be recommending that they get it checked out an extra it.
So what about from an emotional perspective… How do you think the paramedic reacted both in terms of the way he reacted to the patient but also in terms of himself. What do you reckon he had have been feeling?

There are a couple of little things that I don't think I'd have said quite like that bike was taking the BP and he said don't get scared and I thought that was a bit weird to say to a 16-year-old kid… I would have said scared… I would have said this is going be tight but it shouldn't cause any pain and… yeah, like he involved the brother a lot which was interesting. But at the same time he wasn't the one that was injured. When he moulded the brother's hand… It would have been just as easy to say put your arm on your leg and used his actual arm, But he was like talking to him. He was talking to him and explaining things as he went which was good.
And what about the paramedic …what was his emotional reaction to the situation?
He didn't seem like he was reacting over the top or anything. It seemed like he just thought was a kid with a sprained wrist.
So very much business as usual… But not on a… well, I guess given what paramedics deal with, this isn't a high rate on the Richter scale kind of scenario is it?
And like you said that, the kid that he was bench pressing and he talks about videogames but his me just being stereotypical but I don't think that most kids that are really heavily into video games have been going to turn around and be doing weights. And he said it interrupts his daily routine. I thought that was a bit… If it was me I might have explored that a bit further. He just assumed that he was at school and got homework… But yeah apart from that… Well, he was professional and he was talking to him but he made like a few assumptions about things, like sheened… Will be asked him if he was his brother and I just missed it he should have asked where his parents were rather than just assume that was his house.
Can you think of a situation, not necessarily a healthcare one… It could be in any part of your world, where you've encountered a situation where you have to interact with someone who maybe out of sorts for some reason not necessarily in injury but out of sorts, where you've had to try and engage with them and have a conversation? They could be distressed about something… They could be, I don't know, a visitor, a tourist… Someone who is perhaps just not being their normal self for whatever reason.
Okay so where I work I have a few people who come in late at night…
So, what do you do?
I work at <insert department store>. In the layby section and especially since we are 24 hours and from around 1130 you definitely get people who are obviously under the influence or obviously have some kind of issues going on and there is like a facility nearby which, I don't know if it's like a school or a centre with people with disabilities to go that in a few times with had them do a runner and they come to <insert department store>and started shopping and then they just kind of freak out because their carers are not there and the novelty wears off of being on your own and so it had to talk to them and try and get information about where they have come from…
So, how do you do that? What strategies do you have in that situation?
I normally trying get them… I don't normally take them off though shopfloor I normally take them to a spot where I know it's quiet and there aren't as many people walking around and I normally just say to my manager oh look at just got a customer here who going to talk to. I think they're a bit lost or confused and I tell it where am going to be and normally will send a security guard just to stand just nearby.
That's cool.
But yeah I definitely don't put them between the wall and me I'll always put my back to the wall and talk to them or if they're happy to keep looking at things I'll just walk with them while they look at stuff. I don't make them feel weird I don't think I don't think they think why is this person following me. I just asked them if they shop here often and where are they from an that's when they normally say the facility and I'll ask them if there by themselves and

they normally say oh not supposed be. But sometimes, some of them have really severe disabilities and so was harder for them to communicate or like speak clearly I can feel a little awkward. And you get some people let come in and they look normal but as they start talking to you they just start telling you all this stuff… But you know you can't say anything. I just kind of let them talk and not do things that are going to like aggravate them.
Yes that's a good strategy. All right this may or may not happen in that kind of situation but if you encounter someone who is really distressed may be when the novelty wears off and someone discovers that the shopping late at night all alone if they're not supposed to be the, or distressed for some other reason how do you cope?
Normally where it gets to a point where I realise… Because we've had a few times where there's fights and stuff at <insert department store>. We had a lady who came in… We found out later that she was a meth addict and she was in a withdrawal phase when she came in and she was like just… She was scary and when it got to the point that I realised that I was probably making her worse and that it got to a point when maybe she could have lashed out at me and my safety was kind of in question. That's kind of when I would like and it got to that point where I didn't feel 100% safe, then we normally handed off to the security guards or the police… Yes the police step in. Even if it someone that slight really upset and on talking to them…
So by upset do you mean angry agitated or do you mean sad?
So we get the angry agitated in but we've also had a few people that look obviously like they have been crying. They seem sad, but they seem angry or frustrated at the same time and we don't really know what's going on, we just with their. So if they ask us for something and we don't have it and they get really upset then you know normally you would try and talk to them but sometimes they get really spiteful and just want anything to do with you.
So what about in your personal life? If you encounter someone who in a family member who is in floods of tears…?
My partner actually… He had a fight with his mum. It was over nothing, something so random asked about something between him and his dad and he thought his mum would back him up and she didn't and he just lost it. I didn't know what to do. I've never seen him so upset and I didn't know what to do so I can understand and I'm glad that his mum kind of sticks in because she had no idea either. Was a bit confronting really because it never seen in that upset and I didn't understand what was going on.
And there were tears?
Yes there were elephant tears… In fact he was sobbing and this is a 22-year-old fully grown male sobbing and I'm like what is going on and got to the point where are saying what is going on why you so upset. Or not with sure whether that made it better because he was just like leave me alone. So that was a bit kind of confronting, but in the two as lead out there was nothing that either of us had seen that had set him off.
So in hindsight do you have a strategy you know to do with that sort of situation if it happened again?
Normally I think now if he gets, not as in upset but if we've had a disagreement he liked needs 10 minutes to cool down… Time out to sit by himself... And now if I go home because I'm from <elsewhere in Australia> ,in the future… my sister gets upset and she is very much like him I don't push her as much now. I'd just leave her. And bring up an hour later maybe when that had time to calm down.
Cool, well done. So we can change tack a little bit now and chat about your course. I just want to reassure you that I am not associated with paramedicine in any way this is all confidential. When I use the data it gets to identified and no one knows who says what and the staff don't see it or hear it or anything. So, are you enjoying it?

I am. It's interesting, like coming into it I didn't really have any kind of expectations which is why think I'm not… Like unsurprising myself with how in scenarios and stuff so this is what we are doing in this room today and I need to volunteers to be a paramedic and a patient or whatever. And if it's like when they read it out I used to be like oh gosh no over the can be that the force must of to do it anyway because if I don't do it and I'm just going to always… So I think that was good because I'm a lot more confident in terms of doing the scenarios and it's good because like some of the… I don't know if it's just because I'm older, but some of the younger kids aren't really getting into it which is as pity as you've only got two years… So enjoy it.
I can relate to that that's how I feel about as a mature age student going back and doing my Ph.D. full-time I mean it's just amazing.
So to be A1 you have to pass of his fitness test so start now. You've got two years you won't get a job. without… You won't even get a graduate position which we have to do before we get an permanent job, they why give it to you if you don't pass a fitness test and it some of these kids are very overweight and it's like where do you think this is going and they have said this is very competitive so if you're not a distinction or a high distinction student then you're not going to get a job.
Wow. Okay.
And they say you only need Ps to get degrees and some of them are treating it like a gap year.
And it is true, Ps do get degrees… but they don't necessarily get jobs.
And they said it will be interesting after placement because we go on placement and a couple of weeks hopefully and they suspect of 50% of us will drop out.
Wow.
Yeah…
I guess that's because of the reality of what you see…
And so a lot of people… And they have said it's not all car crashes and burns victims 90% of the job is getting called out to a retirement facility because an old lady has fallen out of bed and if you are not willing to be that person that can go out and, even if you've gone out there three times that night because she has problems, if you're not willing to do that then this is of the job for you. So I think a lot of kids just thinking they are saying that to like freak is out.
I don't believe they would tell you that to just freak you out… they would tell you that because it's the truth.
And apparently a lot of people drop out because of the placement aspect because we're stuck with the same, stuck sounds bad but we are put with the same two paramedics and we stay with them for the whole four weeks so when they have therefore days off we have four days and we come back with them and apparently a lot of people drop out because they either don't get along well with their mentors or are willing to cop the constructive feedback and they might not get one single trauma case and they don't think it's exciting. I didn't come into this with any expectations of what happens saying to another girl the other day like I was dreading if we get back call to a car accident because at it and how would react under pressure.
I would have thought that that would have been the really tough one… And what you see… I mean, what you potentially have to face…
And if there was anything with kids… I would have to put myself into therapy before we even got there.
I think that's really important to really be aware of that kind of need in your own self, to look after yourself when you're dealing with those things and this is just an outsider's perspective. I just think it's a natural thing for anyone in the emergency services to have a constant relationship with a psych. I think it's just the deal.

And a lot of our tutors who are paramedics have said it's all well and good to see it or just tell my partner but you can't come home from these cases and you often don't want to tell them because you don't want to have to tell them about what you saw so it is really, even the guy paramedics was saying that it is really important that you either can talk to you work friends and tell them how you're feeling or you contact the therapist that they offer through work.
Yes and that's cool.
It scares me a little bit that some of these kids that come straight out of school think that they'll be fine. Not the placement I'm just dreading that first day when I walk away in go that was a bad day. I think it's just because I'm older and I've had days like that already. Not to this degree… I know it's weird but then I know when I was there age…
So how old are you?
23.
So you are a little bit in front of them and those five years can make a big difference between 17 and 23.
Yes it's insane. It I even noticed it when I was 21 it everybody else was 20 that was for me the time when I first noticed it and I think I swear I wasn't that immature a year ago.
Laughter. You know you've actually answered my next question. Which was is your course living up to your expectations… But clearly you didn't have any, but you're still enjoying it.
Yep, you know I didn't… Everything I had read about or had watched about paramedics on TV which I know isn't realistic see and I know I'm not coming in to expect every case to be like back-to-back trauma cases or exciting cases. They said even paramedics working Queensland who work on surfers Paradise on a week to week basis they only really get the drugs and the drug overdoses on a Friday and Saturday night. During the week they do get called out as there is a massive retiree population in Queensland so they still get the 80% of the calls being not exciting for example a little old lady has woken up and she thinks defeated going to fall off because the cold because she doesn't have socks on but you get called out and you help put socks on and you make a cup of tea and sit with until she feels okay and then you leave. Like, I want to do that…
Yeah that's great fantastic. That's really lovely. Okay, changing tack again kind of a personal question how are you tracking with your results?
I'm doing really well actually.
Good for you.
Last semester I think I came out with a distinction average which I was really happy about. This semester I was wavering on high distinctions internally for all my units which is insane because I did like five and I thought my GPA would just go downhill to just coming out of exams of got my fingers crossed that I did enough to maintain that or even maybe just… Because I don't do as well in exams as I do on assignments.
I don't think anybody does.
Some hoping to come out with a distinction at least. I'm trying to keep a distinction average.
Congratulations.
Thank you.
When you applied for the course did you expect to find the study stuff easier or harder than it years or about the same?
I've already done a degree in <insert name of course> and I did that coming out of school because of was really into all that kind of stuff then particularly the fieldwork but then I found out there aren't a lot of jobs in the fieldwork that you get paid for and talking to someone who works in the Fire Brigade and if you get a degree in paramedicine and do the training and work in that role for five or years then you can put your hand up to be on research trips so I'm hoping… This it's not a means to an end but I'm actually quite enjoying it, but having already done a degree, it was my test run but I knew what uni's expect in terms

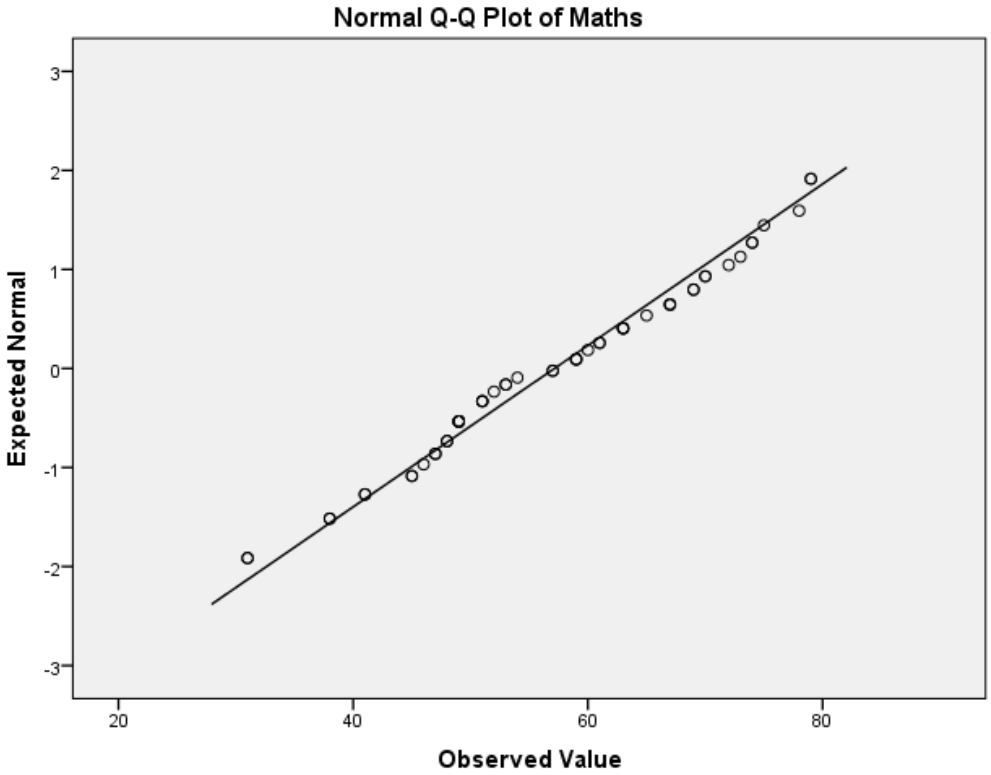
of workload and how early you need to have things done what they say you need to have an assignment done a week before it is due and you let it sit for a couple of days and don't touch it and then edit it. So I think having done that and now coming into this… The content is a lot harder and is a lot more content to know and I was doing five subjects this semester which is massive like I didn't get a break. You may be got to 3 days break but then you never really turned off because there was always something coming so in terms of overall the content is harder the workload is more that maybe it's because of already done at another degree but it's not as hard for me to meet that workload. I know when I need to pull my finger out… It's definitely not a surprise.
That was actually my last question.

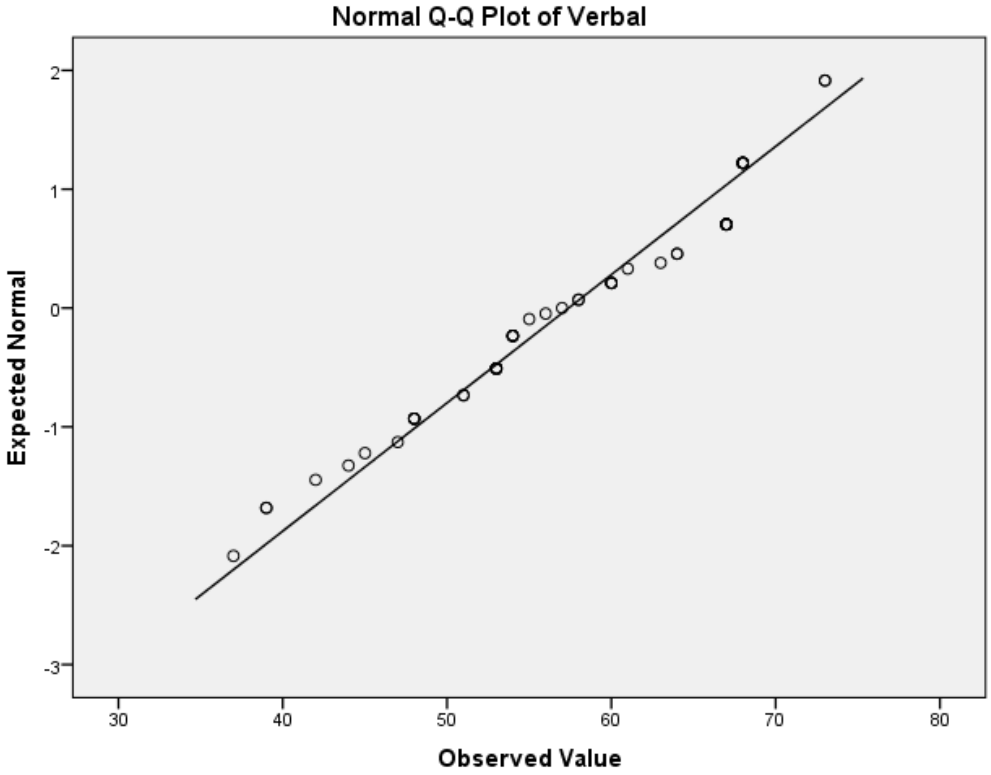
Pharmacy:

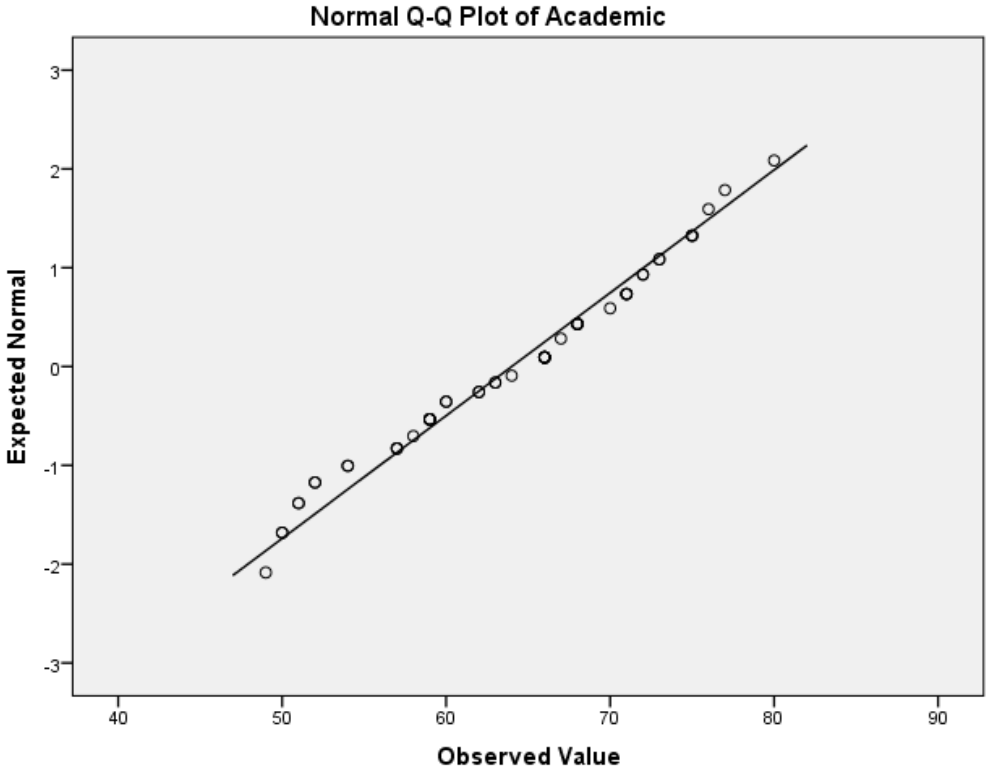
Okay so it’s the 22nd and it's 9am and I'm here with <Insert student name>. So to start with were going to watch this little clip and then we're going to chat about okay?
Okay.
Okay can you give me a bit of a rundown of the clip and the people with involved?
So there was the boy who had hurt his wrist.
Yes, Josh.
And his brother.
Yep.
And then there was an ambulance worker.
Yep a paramedic.
Paramedic. And it had hurt his wrist so the paramedic had come in to help and put him at ease and give advice on what to do.
Perfect. Now the something else going on for Josh other than the sprained wrist have you got any idea what that might have been?
He seemed a bit scared and a bit panicked. In terms of physical illness I don't think there was anything else I think it was more so mental that I picked up on.
Yep I think you're on the right track there. What was it that may have given that away?
He seemed to be pale, a bit scared, his voice was really trembly and he didn't seem very comfortable at all, but I think the paramedic was doing a very good job to come him down as well.
So from the paramedic's perspective, how do you think he was doing emotionally with that situation? What was going on for the paramedic?
The paramedic, he seemed really calm. He seemed to make it out like it wasn't such a big deal so I think that would have helped incoming the patient down as well.
Cool. So, can you think of a situation that you've been in, not necessarily a health care one, but any kind of situation where you've encountered someone who's been a bit anxious and it had to try and talk to them, work through something with them in a way that is going to come them down?
Yeah, yeah.
Can you share that?
Well, a lot of my friends have anxiety so, it's like not really any one thing that I can think of exactly, but it's going through every day things they just worry a lot about things and you have to get them to talk through what is actually worrying them, I think and basically reassurance is always a good thing. Basically just trying to get them to tell you what is wrong. And to talk through how we can fix that.
Yeah, no that's great. So, if you encounter someone who is really distressed how do you cope with that?
I haven't really encountered that before so haven't really needed to deal with that…
You've never had anyone in floods of tears?
Not when I have been by myself, but if it's been a friend or something that, but this wouldn't work in a professional situation…
No, that's fine it could be anything.
So, just like comforting as in hugs and things like that.
Hugs often help, don't they?
Just hugs I think are better than words sometimes, but I haven't had anything else.
And what about your own emotional reaction to seeing someone who is upset?
Yeah, it upsets me also.

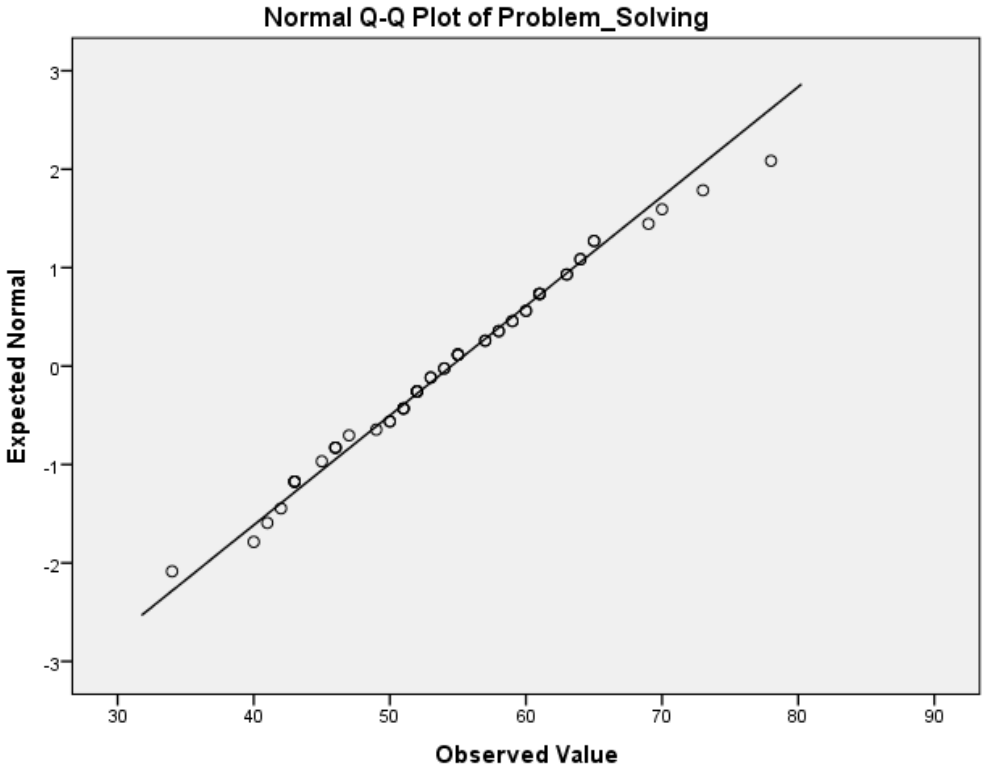
Do you have any strategies that you work through all that you have in your kit of things to keep your own reaction in check?
I always try and put myself into the other person's shoes, like try and think through why they are feeling the way they are. I find that helps in understanding what is happening.
So, the understanding helps you manage your own reaction. Great thank you. Okay, so we're going to jump around a little bit now. We're going to chat briefly about your course. And I just want to reassure you that I am not on staff with your school; that this is completely confidential, none of this gets back to them, they don't see what I type up. So, how are you enjoying your course?
Yeah, I am enjoying parts of it. There are some days when it's hard to keep motivation towards reaching the end. In terms, overall I am finding it enjoyable and interesting, yeah.
So it is a living up to expectations?
Well, the pharmacy side of it is because I'm doing three different units at the moment and so like there's one that strictly on pharmaceutical science which I'm really enjoying doing that and then there's ones that are biology and chemistry. In terms of chemistry I'm finding that hard to relate to anything that I am going to need to use, some finding that one a bit hard to stay motivated towards studying. But biology and pharmacy units I am really liking.
All right, personal question. How are you tracking with your results?
Really good actually
Oh fantastic. Congratulations! That's great excellent.
I don't want to say that too soon.
It's okay it's time and space as it is right now.
Yes so right now.
And by last question, so this isn't a long chat.
Sure.
When you applied to the course did you expect to find the study stuff easier harder or is but the same as it actually is.
I actually expected it to be a lot easier than it has been.
Okay, right. In what way?
So, when I looked it up it was saying that it was intro to everything, so I was assured me that that would be leading on from year 12, which is what I have just come out of, but it's kind of like they issue deemed I know a lot more than I actually do.
Right.
It's kind of been all so, even though it is meant to be going over what I have already learned, a lot of it I have to learn from scratch, which is probably why I found it harder than I thought I would.
Do you think that will level out in second you may be?
Yeah, hopefully.
I guess time will tell.

Appendix 9: Normal Q-Q plot for Academic subscales of the SDQIII






Normal Q-Q Plot of Academic
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
40
50
60
70
80
90

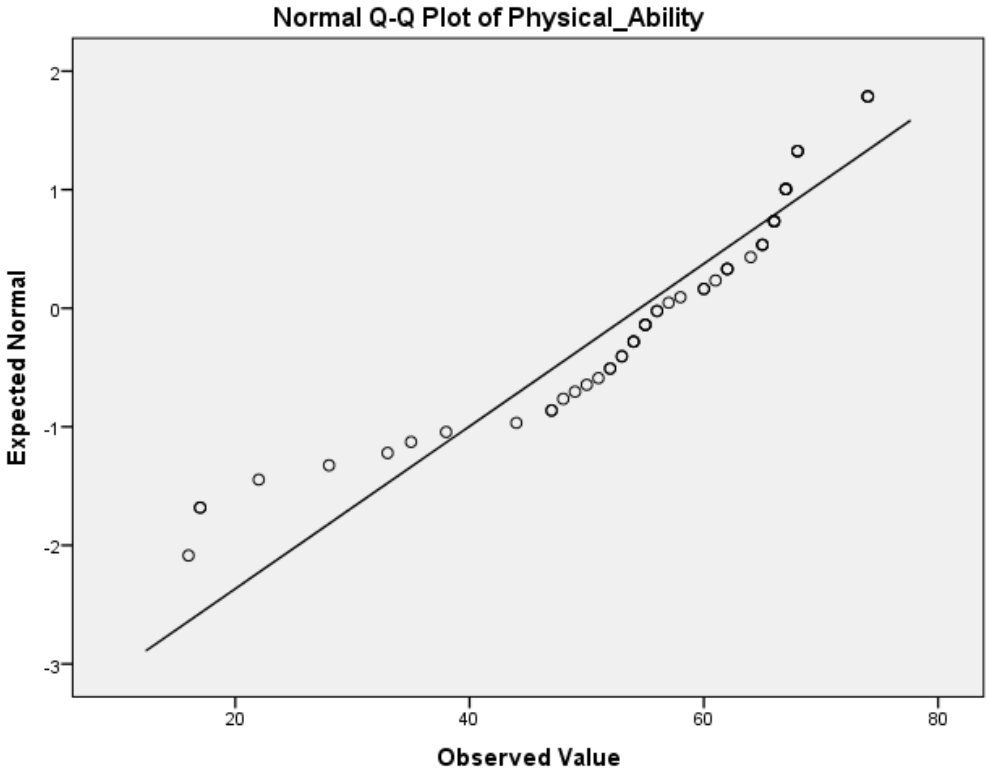

Normal Q-Q Plot of Problem_Solving
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
30
40
50
60
70
80
90

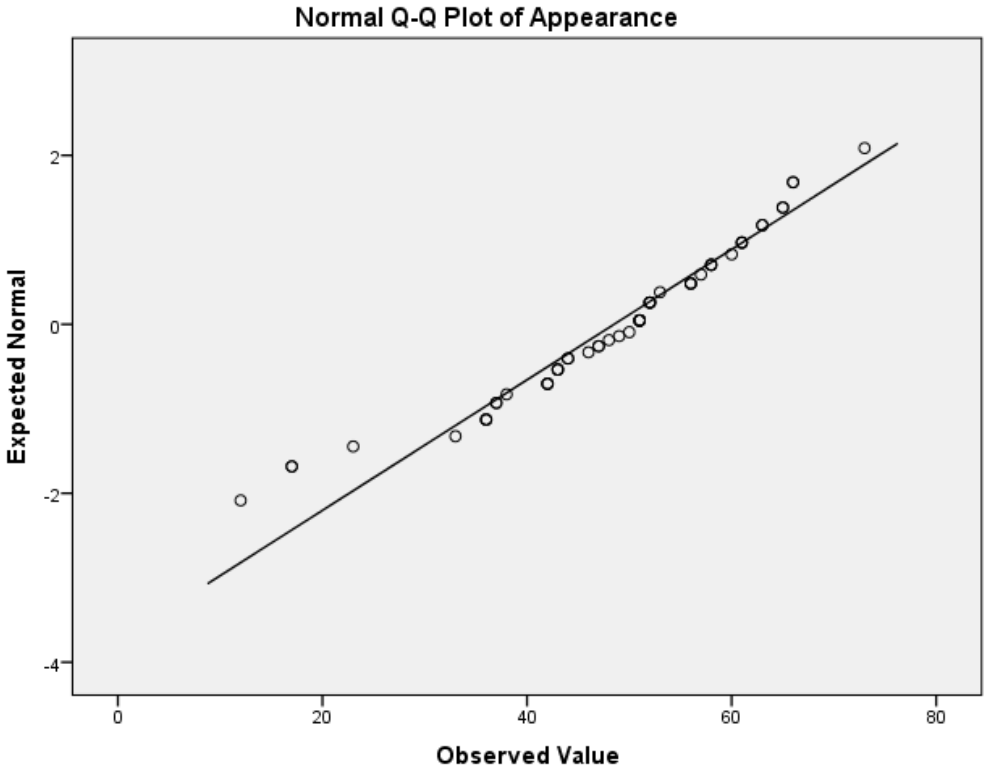
Appendix 10: Homogeneity of Variance for Academic subscales of the SDQIII

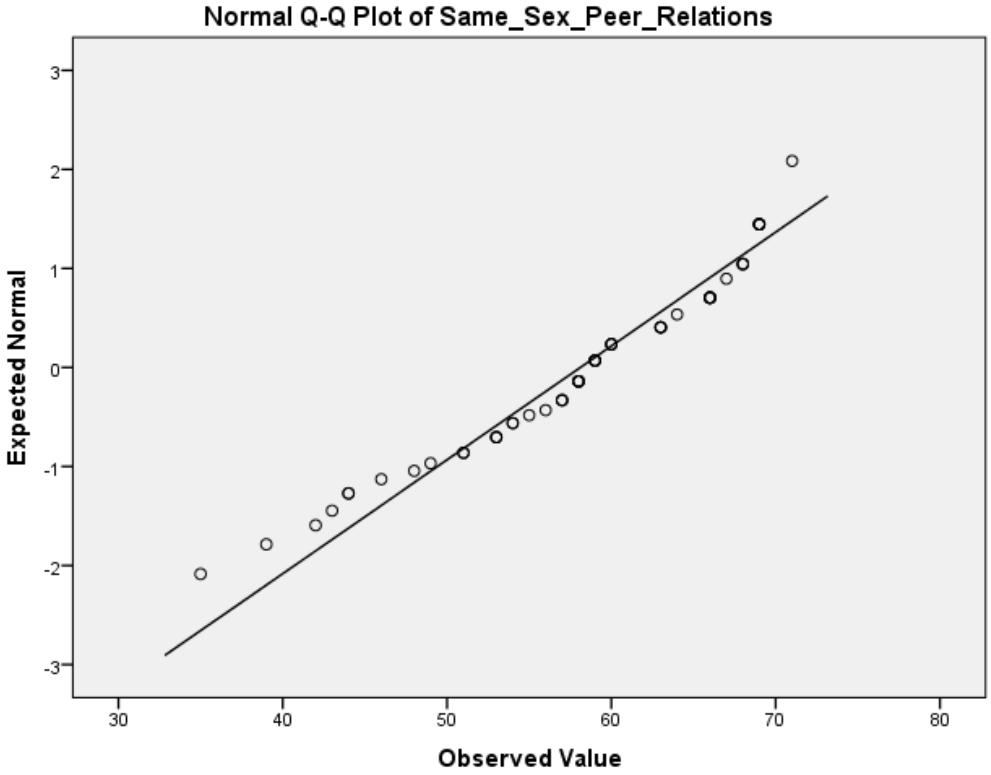
Test of Homogeneity of Variance

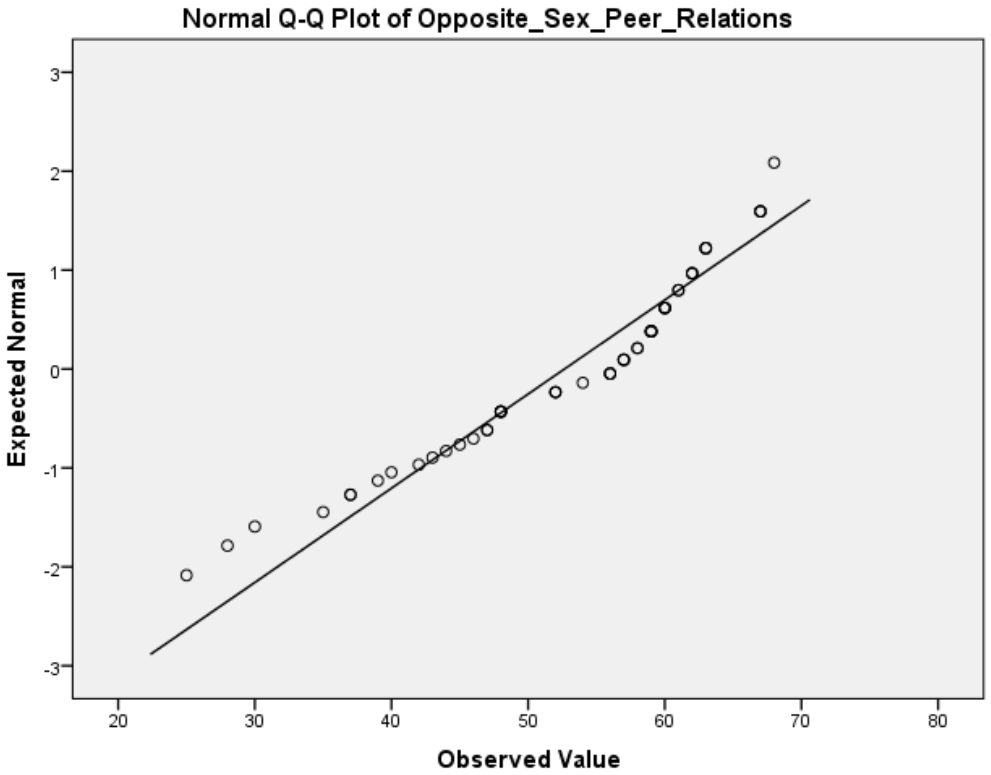
		Levene Statistic	df1	df2	Sig.
Maths	Based on Mean	.967	2	50	.387
	Based on Median	.835	2	50	.440
	Based on Median and with adjusted df	.835	2	44.612	.440
	Based on trimmed mean	.934	2	50	.400
Verbal	Based on Mean	.800	2	50	.455
	Based on Median	.402	2	50	.671
	Based on Median and with adjusted df	.402	2	44.715	.671
	Based on trimmed mean	.764	2	50	.471
Academic	Based on Mean	.192	2	50	.826
	Based on Median	.159	2	50	.854
	Based on Median and with adjusted df	.159	2	49.717	.854
	Based on trimmed mean	.196	2	50	.822
Problem_Solving	Based on Mean	.540	2	50	.586
	Based on Median	.502	2	50	.608
	Based on Median and with adjusted df	.502	2	48.923	.608
	Based on trimmed mean	.532	2	50	.591

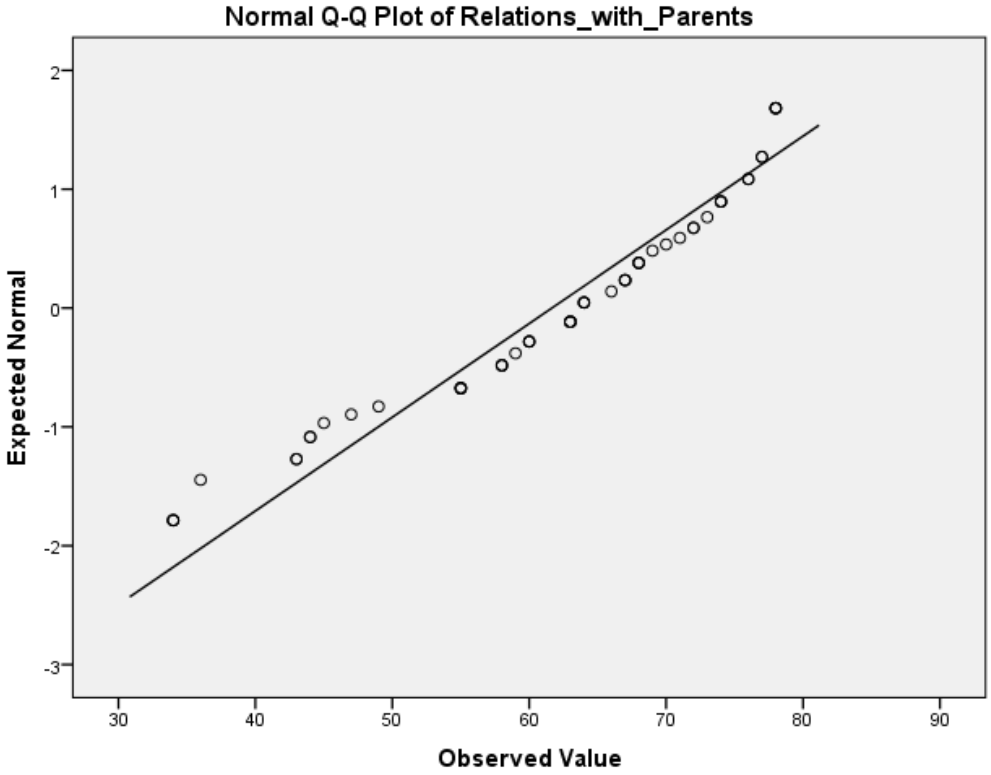
Appendix 11: Normal Q-Q plot for Non-Academic subscales of the SDQIII

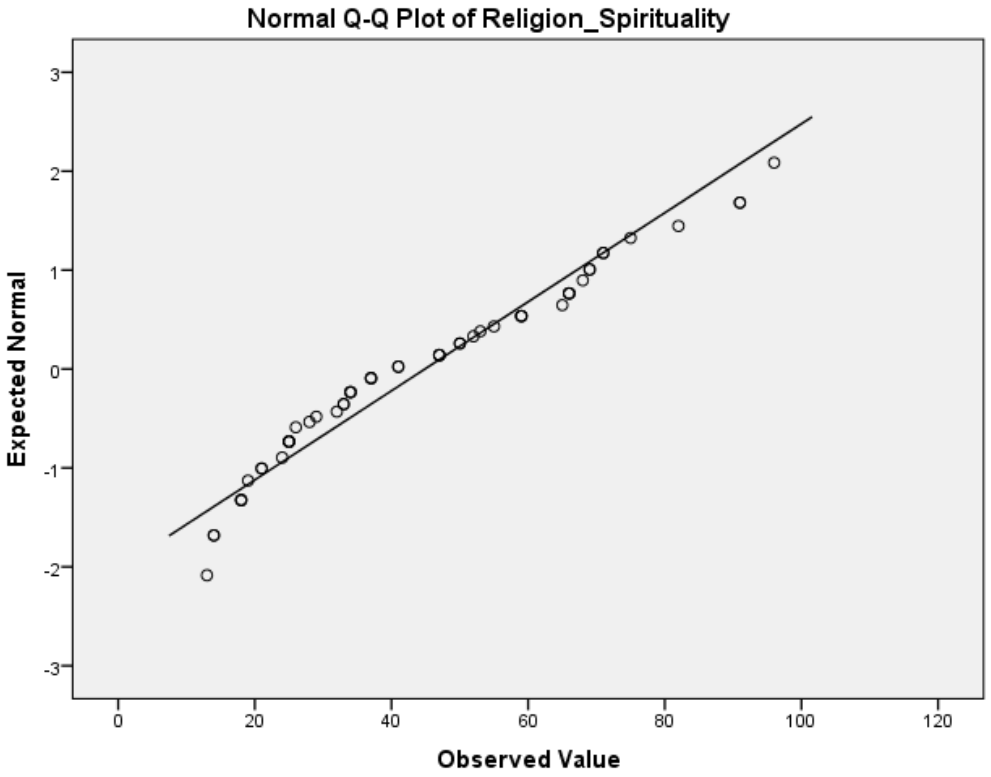


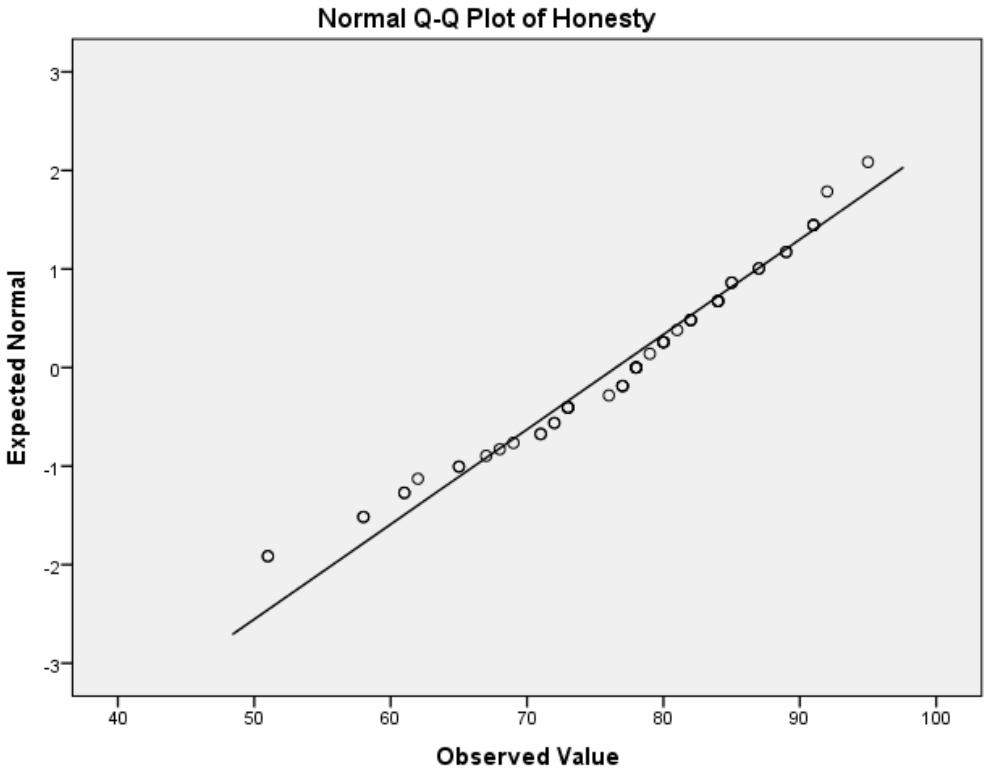


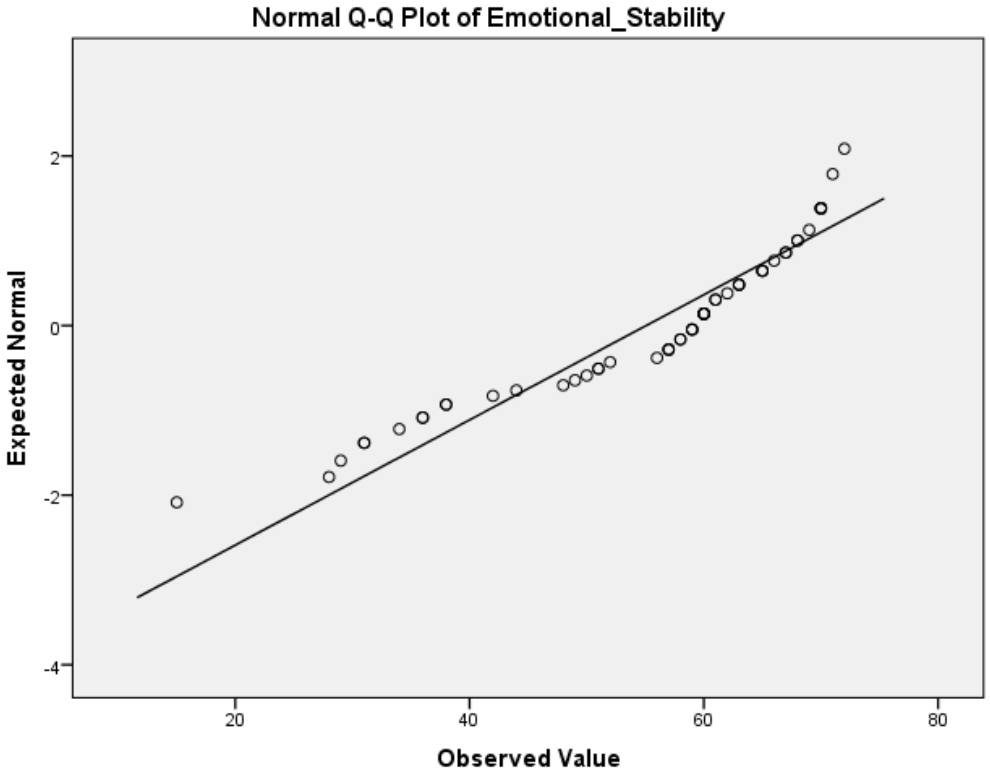

Normal Q-Q Plot of Same_Sex_Peer_Relations
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
30
40
50
60
70
80

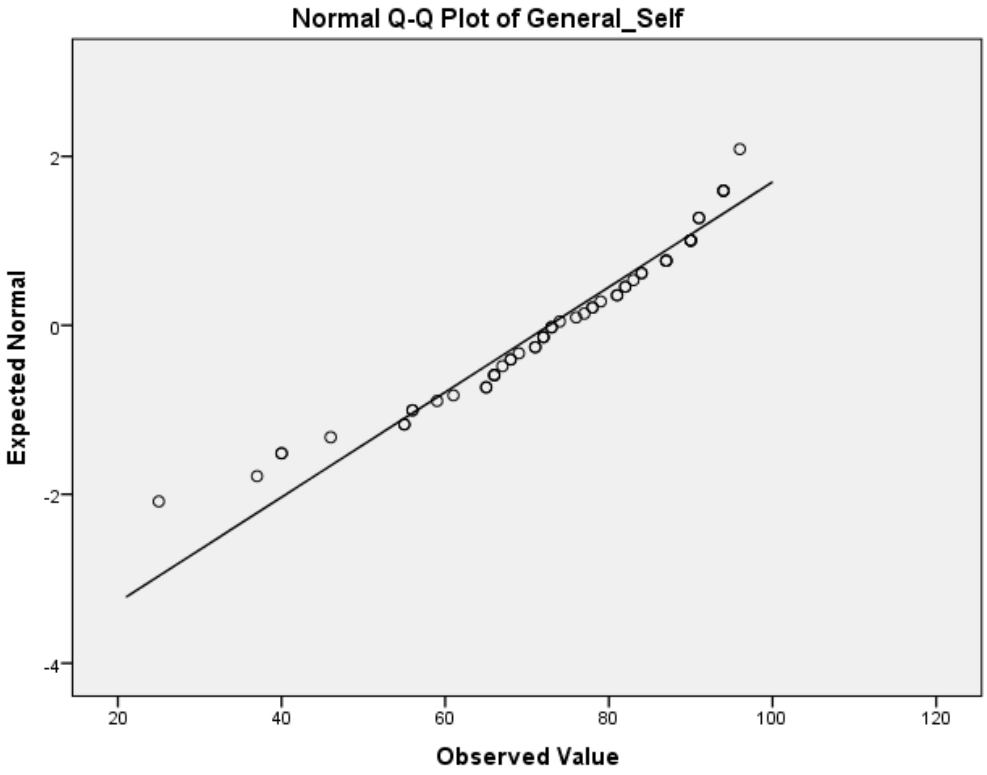

Normal Q-Q Plot of Opposite_Sex_Peer_Relations
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
20
30
40
50
60
70
80


Normal Q-Q Plot of Relations_with_Parents
Expected Normal
Observed Value
2
1
0
-1
-2
-3
30
40
50
60
70
80
90


Normal Q-Q Plot of Religion_Spirituality
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120


Normal Q-Q Plot of Honesty
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
40
50
60
70
80
90
100


Normal Q-Q Plot of Emotional_Stability
Expected Normal
Observed Value
2
0
-2
-4
20
40
60
80


Normal Q-Q Plot of General_Self
Expected Normal
2
0
-2
-4
20
40
60
80
100
120
Observed Value

Appendix 12: Homogeneity of Variance for Non-Academic subscales of the SDQIII

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Physical_Ability	Based on Mean	1.383	2	50	.260
	Based on Median	1.017	2	50	.369
	Based on Median and with adjusted df	1.017	2	46.011	.370
	Based on trimmed mean	1.219	2	50	.304
Appearance	Based on Mean	1.304	2	50	.280
	Based on Median	1.224	2	50	.303
	Based on Median and with adjusted df	1.224	2	48.538	.303
	Based on trimmed mean	1.302	2	50	.281
Same_Sex_Peer_Relations	Based on Mean	.095	2	50	.910
	Based on Median	.121	2	50	.886
	Based on Median and with adjusted df	.121	2	49.218	.886
	Based on trimmed mean	.094	2	50	.910
Opposite_Sex_Peer_Relations	Based on Mean	.714	2	50	.495
	Based on Median	.849	2	50	.434
	Based on Median and with adjusted df	.849	2	38.354	.436
	Based on trimmed mean	.753	2	50	.476
Relations_with_Parents	Based on Mean	.412	2	50	.664
	Based on Median	.409	2	50	.667
	Based on Median and with adjusted df	.409	2	49.319	.667
	Based on trimmed mean	.450	2	50	.640
Religion_Spirituality	Based on Mean	1.673	2	50	.198
	Based on Median	.789	2	50	.460
	Based on Median and with adjusted df	.789	2	47.195	.460
	Based on trimmed mean	1.540	2	50	.224
Honesty	Based on Mean	.061	2	50	.941
	Based on Median	.053	2	50	.948
	Based on Median and with adjusted df	.053	2	46.993	.948
	Based on trimmed mean	.064	2	50	.938
Emotional_Stability	Based on Mean	.545	2	50	.584
	Based on Median	.180	2	50	.836
	Based on Median and with adjusted df	.180	2	41.442	.836
	Based on trimmed mean	.373	2	50	.690
General_Self	Based on Mean	1.487	2	50	.236
	Based on Median	1.069	2	50	.351
	Based on Median and with adjusted df	1.069	2	40.027	.353
	Based on trimmed mean	1.304	2	50	.280

Appendix 13: SPSS outputs for assumption testing and ANOVA for Academic self-concept

Descriptives

Academic

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Medicine	29	64.00	8.302	1.542	60.84	67.16	49	80
Pharmacy	9	63.78	7.207	2.402	58.24	69.32	52	73
Paramedicine	15	64.13	8.526	2.201	59.41	68.85	50	77
Total	53	64.00	8.043	1.105	61.78	66.22	49	80

Test of Homogeneity of Variances

Academic

Levene Statistic	df1	df2	Sig.
.192	2	50	.826

ANOVA

Academic

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.711	2	.356	.005	.995
Within Groups	3363.289	50	67.266		
Total	3364.000	52			

Multiple Comparisons

Dependent Variable: Academic
Bonferroni

(I) Course	(J) Course	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Medicine	Pharmacy	.222	3.129	1.000	-7.53	7.97
	Paramedicine	-.133	2.608	1.000	-6.59	6.33
Pharmacy	Medicine	-.222	3.129	1.000	-7.97	7.53
	Paramedicine	-.356	3.458	1.000	-8.92	8.21
Paramedicine	Medicine	.133	2.608	1.000	-6.33	6.59
	Pharmacy	.356	3.458	1.000	-8.21	8.92

Appendix 14: SPSS outputs for the MANOVAs for Academic self-concept

Course by Age:

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.983	642.658[b]	4.000	44.000	.000
	Wilks' Lambda	.017	642.658[b]	4.000	44.000	.000
	Hotelling's Trace	58.423	642.658[b]	4.000	44.000	.000
	Roy's Largest Root	58.423	642.658[b]	4.000	44.000	.000
Course	Pillai's Trace	.146	.884	8.000	90.000	.533
	Wilks' Lambda	.859	.868[b]	8.000	88.000	.546
	Hotelling's Trace	.159	.852	8.000	86.000	.560
	Roy's Largest Root	.107	1.206[c]	4.000	45.000	.321
TwentyOne_or_younger	Pillai's Trace	.087	1.053[b]	4.000	44.000	.391
	Wilks' Lambda	.913	1.053[b]	4.000	44.000	.391
	Hotelling's Trace	.096	1.053[b]	4.000	44.000	.391
	Roy's Largest Root	.096	1.053[b]	4.000	44.000	.391
Course * TwentyOne_or_younger	Pillai's Trace	.121	.726	8.000	90.000	.668
	Wilks' Lambda	.880	.725[b]	8.000	88.000	.669
	Hotelling's Trace	.135	.724	8.000	86.000	.670
	Roy's Largest Root	.122	1.376[c]	4.000	45.000	.257

a. Design: Intercept + Course + TwentyOne_or_younger + Course * TwentyOne_or_younger

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Course by Gender:

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.979	518.588[b]	4.000	44.000	.000
	Wilks' Lambda	.021	518.588[b]	4.000	44.000	.000
	Hotelling's Trace	47.144	518.588[b]	4.000	44.000	.000
	Roy's Largest Root	47.144	518.588[b]	4.000	44.000	.000
Course	Pillai's Trace	.067	.391	8.000	90.000	.923
	Wilks' Lambda	.934	.384[b]	8.000	88.000	.926
	Hotelling's Trace	.070	.377	8.000	86.000	.930
	Roy's Largest Root	.055	.615[c]	4.000	45.000	.654
Gender	Pillai's Trace	.036	.412[b]	4.000	44.000	.799
	Wilks' Lambda	.964	.412[b]	4.000	44.000	.799
	Hotelling's Trace	.037	.412[b]	4.000	44.000	.799
	Roy's Largest Root	.037	.412[b]	4.000	44.000	.799
Course * Gender	Pillai's Trace	.076	.443	8.000	90.000	.892
	Wilks' Lambda	.924	.441[b]	8.000	88.000	.893
	Hotelling's Trace	.081	.438	8.000	86.000	.895
	Roy's Largest Root	.079	.885[c]	4.000	45.000	.481

a. Design: Intercept + Course + Gender + Course * Gender

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Course by Prior Tertiary Study

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.982	616.469[b]	4.000	44.000	.000
	Wilks' Lambda	.018	616.469[b]	4.000	44.000	.000
	Hotelling's Trace	56.043	616.469[b]	4.000	44.000	.000
	Roy's Largest Root	56.043	616.469[b]	4.000	44.000	.000
Course	Pillai's Trace	.123	.738	8.000	90.000	.658
	Wilks' Lambda	.880	.723[b]	8.000	88.000	.670
	Hotelling's Trace	.132	.709	8.000	86.000	.683
	Roy's Largest Root	.085	.961[c]	4.000	45.000	.438
Previous_Tertiary_Study	Pillai's Trace	.084	1.007[b]	4.000	44.000	.414
	Wilks' Lambda	.916	1.007[b]	4.000	44.000	.414
	Hotelling's Trace	.092	1.007[b]	4.000	44.000	.414
	Roy's Largest Root	.092	1.007[b]	4.000	44.000	.414
Course * Previous_Tertiary_Study	Pillai's Trace	.063	.366	8.000	90.000	.936
	Wilks' Lambda	.937	.361[b]	8.000	88.000	.938
	Hotelling's Trace	.066	.356	8.000	86.000	.941
	Roy's Largest Root	.057	.643[c]	4.000	45.000	.635

a. Design: Intercept + Course + Previous_Tertiary_Study + Course * Previous_Tertiary_Study

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Appendix 15: SPSS outputs for IRI assumption testing

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Course	N	Percent	N	Percent	N	Percent
Fantasy	Medicine	29	100.0%	0	0.0%	29	100.0%
	Pharmacy	9	100.0%	0	0.0%	9	100.0%
	Paramedicine	15	100.0%	0	0.0%	15	100.0%
Perspective_Taking	Medicine	29	100.0%	0	0.0%	29	100.0%
	Pharmacy	9	100.0%	0	0.0%	9	100.0%
	Paramedicine	15	100.0%	0	0.0%	15	100.0%
Empathic_Concern	Medicine	29	100.0%	0	0.0%	29	100.0%
	Pharmacy	9	100.0%	0	0.0%	9	100.0%
	Paramedicine	15	100.0%	0	0.0%	15	100.0%
Personal_Distress	Medicine	29	100.0%	0	0.0%	29	100.0%
	Pharmacy	9	100.0%	0	0.0%	9	100.0%
	Paramedicine	15	100.0%	0	0.0%	15	100.0%

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Course	Statistic	df	Sig.	Statistic	df	Sig.
Fantasy	Medicine	.121	29	.200*	.969	29	.540
	Pharmacy	.168	9	.200*	.931	9	.495
	Paramedicine	.111	15	.200*	.936	15	.340
Perspective_Taking	Medicine	.139	29	.158	.955	29	.244
	Pharmacy	.137	9	.200*	.973	9	.918
	Paramedicine	.150	15	.200*	.918	15	.178
Empathic_Concern	Medicine	.131	29	.200*	.928	29	.050
	Pharmacy	.214	9	.200*	.940	9	.580
	Paramedicine	.149	15	.200*	.945	15	.445
Personal_Distress	Medicine	.151	29	.089	.914	29	.021
	Pharmacy	.272	9	.054	.874	9	.134
	Paramedicine	.113	15	.200*	.956	15	.616

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Fantasy	Based on Mean	.750	2	50	.478
	Based on Median	.760	2	50	.473
	Based on Median and with adjusted df	.760	2	47.636	.473
	Based on trimmed mean	.763	2	50	.472
Perspective_Taking	Based on Mean	.308	2	50	.736
	Based on Median	.198	2	50	.821
	Based on Median and with adjusted df	.198	2	43.676	.821
	Based on trimmed mean	.297	2	50	.744
Empathic_Concern	Based on Mean	.619	2	50	.543
	Based on Median	.592	2	50	.557
	Based on Median and with adjusted df	.592	2	43.963	.557
	Based on trimmed mean	.655	2	50	.524
Personal_Distress	Based on Mean	.994	2	50	.377
	Based on Median	.990	2	50	.379
	Based on Median and with adjusted df	.990	2	49.630	.379
	Based on trimmed mean	1.008	2	50	.372

Appendix 16: IRI two-tailed Independent Samples t-test SPSS outputs

Age:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Fantasy	Equal variances assumed	.586	.447	-.481	51	.632	-.698	1.450	-3.610	2.213
	Equal variances not assumed			-.538	33.118	.594	-.698	1.297	-3.337	1.941
Perspective_Taking	Equal variances assumed	.483	.490	-.051	51	.959	-.058	1.125	-2.316	2.201
	Equal variances not assumed			-.056	30.803	.956	-.058	1.037	-2.173	2.058
Empathic_Concern	Equal variances assumed	.691	.410	.724	51	.472	.853	1.177	-1.511	3.216
	Equal variances not assumed			.654	21.283	.520	.853	1.304	-1.857	3.563
Personal_Distress	Equal variances assumed	.127	.723	.929	51	.357	1.195	1.286	-1.388	3.777
	Equal variances not assumed			.927	25.635	.362	1.195	1.288	-1.455	3.845

Gender:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Fantasy	Equal variances assumed	.002	.967	2.063	51	.044	3.102	1.503	.084	6.119
	Equal variances not assumed			2.054	17.841	.055	3.102	1.510	-.073	6.276
Perspective_Taking	Equal variances assumed	.454	.503	1.672	51	.101	1.972	1.179	-.395	4.339
	Equal variances not assumed			1.540	16.100	.143	1.972	1.280	-.741	4.684
Empathic_Concern	Equal variances assumed	.011	.916	1.266	51	.211	1.587	1.254	-.931	4.105
	Equal variances not assumed			1.145	15.758	.269	1.587	1.387	-1.356	4.531
Personal_Distress	Equal variances assumed	.026	.873	-1.442	51	.155	-1.974	1.369	-4.721	.774
	Equal variances not assumed			-1.378	16.860	.186	-1.974	1.432	-4.998	1.050

Prior Tertiary Study:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Fantasy	Equal variances assumed	.124	.727	.085	51	.933	.119	1.403	-2.697	2.935
	Equal variances not assumed			.089	34.936	.930	.119	1.346	-2.614	2.853
Perspective_Taking	Equal variances assumed	.208	.650	.552	51	.583	.598	1.082	-1.575	2.771
	Equal variances not assumed			.578	35.359	.567	.598	1.034	-1.501	2.697
Empathic_Concern	Equal variances assumed	.850	.361	-.212	51	.833	-.242	1.142	-2.534	2.050
	Equal variances not assumed			-.194	25.723	.847	-.242	1.244	-2.801	2.317
Personal_Distress	Equal variances assumed	.140	.710	-1.335	51	.188	-1.642	1.231	-4.113	.828
	Equal variances not assumed			-1.384	34.520	.175	-1.642	1.187	-4.052	.768

Appendix 17: IRI ANOVA SPSS outputs

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Fantasy	Medicine	29	18.59	4.770	.886	16.77	20.40	9	28
	Pharmacy	9	19.44	3.539	1.180	16.72	22.17	15	25
	Paramedicine	15	18.00	5.412	1.397	15.00	21.00	5	25
	Total	53	18.57	4.721	.648	17.26	19.87	5	28
Perspective_Taking	Medicine	29	20.14	3.662	.680	18.75	21.53	14	27
	Pharmacy	9	20.33	4.555	1.518	16.83	23.83	12	27
	Paramedicine	15	20.80	3.256	.841	19.00	22.60	16	25
	Total	53	20.36	3.654	.502	19.35	21.37	12	27
Empathic_Concern	Medicine	29	22.66	3.648	.677	21.27	24.04	13	28
	Pharmacy	9	19.78	4.842	1.614	16.06	23.50	12	27
	Paramedicine	15	21.40	3.247	.838	19.60	23.20	17	28
	Total	53	21.81	3.843	.528	20.75	22.87	12	28
Personal_Distress	Medicine	29	10.66	3.801	.706	9.21	12.10	5	22
	Pharmacy	9	11.00	3.742	1.247	8.12	13.88	5	15
	Paramedicine	15	8.33	4.952	1.279	5.59	11.08	1	17
	Total	53	10.06	4.213	.579	8.90	11.22	1	22

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Fantasy	.750	2	50	.478
Perspective_Taking	.308	2	50	.736
Empathic_Concern	.619	2	50	.543
Personal_Distress	.994	2	50	.377

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Fantasy	Between Groups	11.762	2	5.881	.256	.775
	Within Groups	1147.257	50	22.945		
	Total	1159.019	52			
Perspective_Taking	Between Groups	4.340	2	2.170	.157	.855
	Within Groups	689.848	50	13.797		
	Total	694.189	52			
Empathic_Concern	Between Groups	60.406	2	30.203	2.134	.129
	Within Groups	707.707	50	14.154		
	Total	768.113	52			
Personal_Distress	Between Groups	62.945	2	31.473	1.830	.171
	Within Groups	859.885	50	17.198		
	Total	922.830	52			

Appendix 18: IRI MANOVA SPSS outputs

Course by Age:

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.976	445.920[b]	4.000	44.000	.000
	Wilks' Lambda	.024	445.920[b]	4.000	44.000	.000
	Hotelling's Trace	40.538	445.920[b]	4.000	44.000	.000
	Roy's Largest Root	40.538	445.920[b]	4.000	44.000	.000
Course	Pillai's Trace	.203	1.269	8.000	90.000	.270
	Wilks' Lambda	.804	1.264[b]	8.000	88.000	.272
	Hotelling's Trace	.234	1.259	8.000	86.000	.276
	Roy's Largest Root	.186	2.092[c]	4.000	45.000	.098
TwentyOne_or_younger	Pillai's Trace	.013	.144[b]	4.000	44.000	.965
	Wilks' Lambda	.987	.144[b]	4.000	44.000	.965
	Hotelling's Trace	.013	.144[b]	4.000	44.000	.965
	Roy's Largest Root	.013	.144[b]	4.000	44.000	.965
Course * TwentyOne_or_younger	Pillai's Trace	.226	1.431	8.000	90.000	.194
	Wilks' Lambda	.781	1.444[b]	8.000	88.000	.190
	Hotelling's Trace	.271	1.455	8.000	86.000	.186
	Roy's Largest Root	.232	2.605[c]	4.000	45.000	.048

a. Design: Intercept + Course + TwentyOne_or_younger + Course * TwentyOne_or_younger

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Course by Gender:

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.972	377.553[b]	4.000	44.000	.000
	Wilks' Lambda	.028	377.553[b]	4.000	44.000	.000
	Hotelling's Trace	34.323	377.553[b]	4.000	44.000	.000
	Roy's Largest Root	34.323	377.553[b]	4.000	44.000	.000
Course	Pillai's Trace	.199	1.241	8.000	90.000	.285
	Wilks' Lambda	.809	1.232[b]	8.000	88.000	.290
	Hotelling's Trace	.227	1.222	8.000	86.000	.296
	Roy's Largest Root	.175	1.964[c]	4.000	45.000	.116
Gender	Pillai's Trace	.142	1.823[b]	4.000	44.000	.141
	Wilks' Lambda	.858	1.823[b]	4.000	44.000	.141
	Hotelling's Trace	.166	1.823[b]	4.000	44.000	.141
	Roy's Largest Root	.166	1.823[b]	4.000	44.000	.141
Course * Gender	Pillai's Trace	.378	2.624	8.000	90.000	.012
	Wilks' Lambda	.648	2.666[b]	8.000	88.000	.011
	Hotelling's Trace	.503	2.703	8.000	86.000	.011
	Roy's Largest Root	.402	4.527[c]	4.000	45.000	.004

a. Design: Intercept + Course + Gender + Course * Gender

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Course by Prior Tertiary Study:

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.975	426.854[b]	4.000	44.000	.000
	Wilks' Lambda	.025	426.854[b]	4.000	44.000	.000
	Hotelling's Trace	38.805	426.854[b]	4.000	44.000	.000
	Roy's Largest Root	38.805	426.854[b]	4.000	44.000	.000
Course	Pillai's Trace	.215	1.352	8.000	90.000	.229
	Wilks' Lambda	.793	1.354[b]	8.000	88.000	.228
	Hotelling's Trace	.252	1.354	8.000	86.000	.228
	Roy's Largest Root	.207	2.327[c]	4.000	45.000	.071
Previous_Tertiary_Study	Pillai's Trace	.028	.320[b]	4.000	44.000	.863
	Wilks' Lambda	.972	.320[b]	4.000	44.000	.863
	Hotelling's Trace	.029	.320[b]	4.000	44.000	.863
	Roy's Largest Root	.029	.320[b]	4.000	44.000	.863
Course * Previous_Tertiary_Study	Pillai's Trace	.243	1.559	8.000	90.000	.148
	Wilks' Lambda	.764	1.584[b]	8.000	88.000	.141
	Hotelling's Trace	.299	1.606	8.000	86.000	.135
	Roy's Largest Root	.260	2.930[c]	4.000	45.000	.031

a. Design: Intercept + Course + Previous_Tertiary_Study + Course * Previous_Tertiary_Study

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

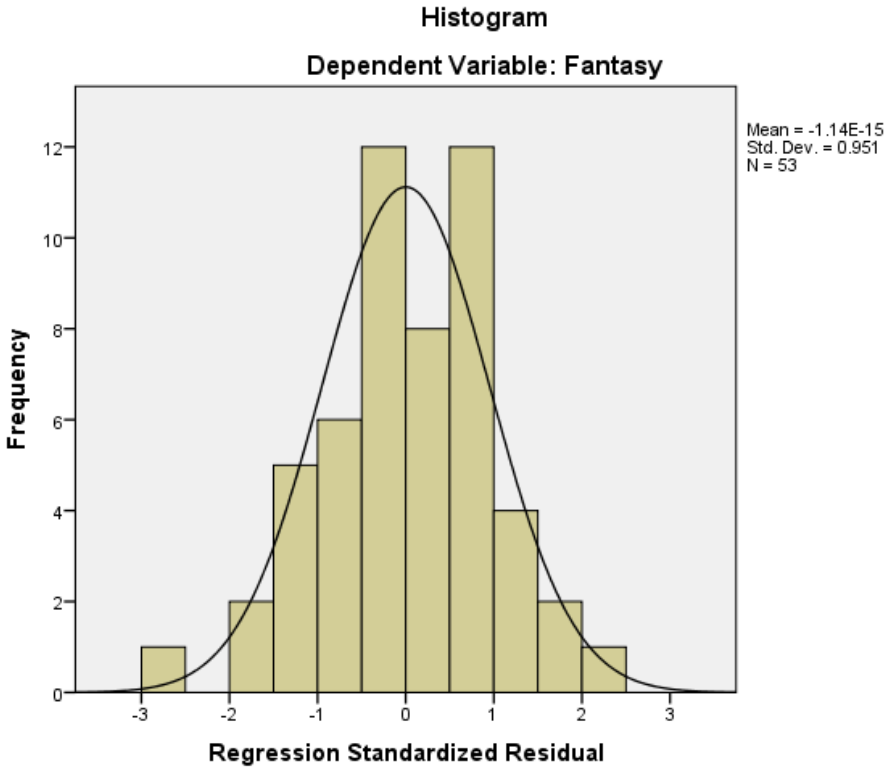
Appendix 19: SPSS outputs for descriptive statistics and assumption testing for the IRI

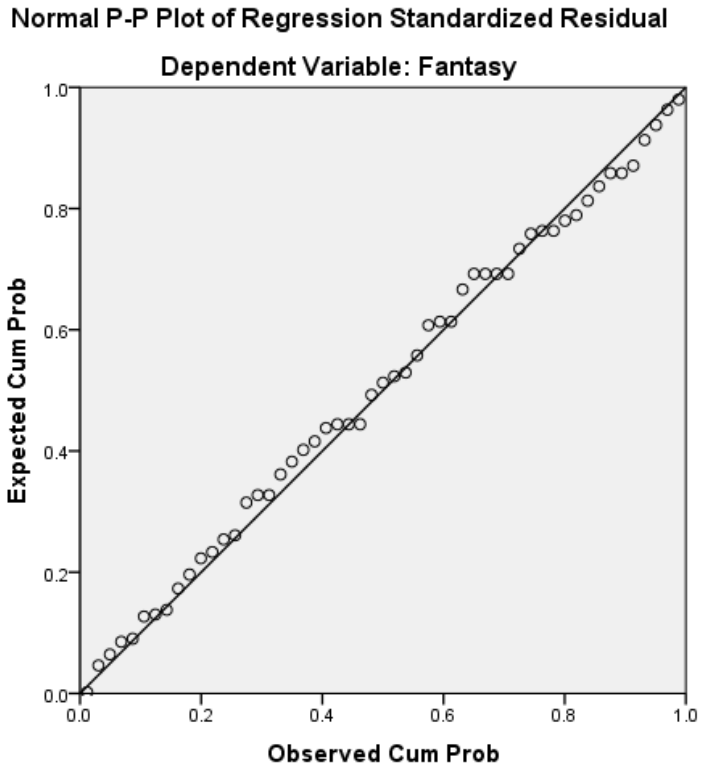
Hierarchical Multiple Regression

Fantasy subscale:

Descriptive Statistics

	Mean	Std. Deviation	N
Fantasy	18.57	4.721	53
Male	.2264	.42252	53
Pharmacy1	.1698	.37906	53
Paramed1	.2830	.45478	53
TwentyOneorYounger_No	.2830	.45478	53
PTS_No	.6792	.47123	53

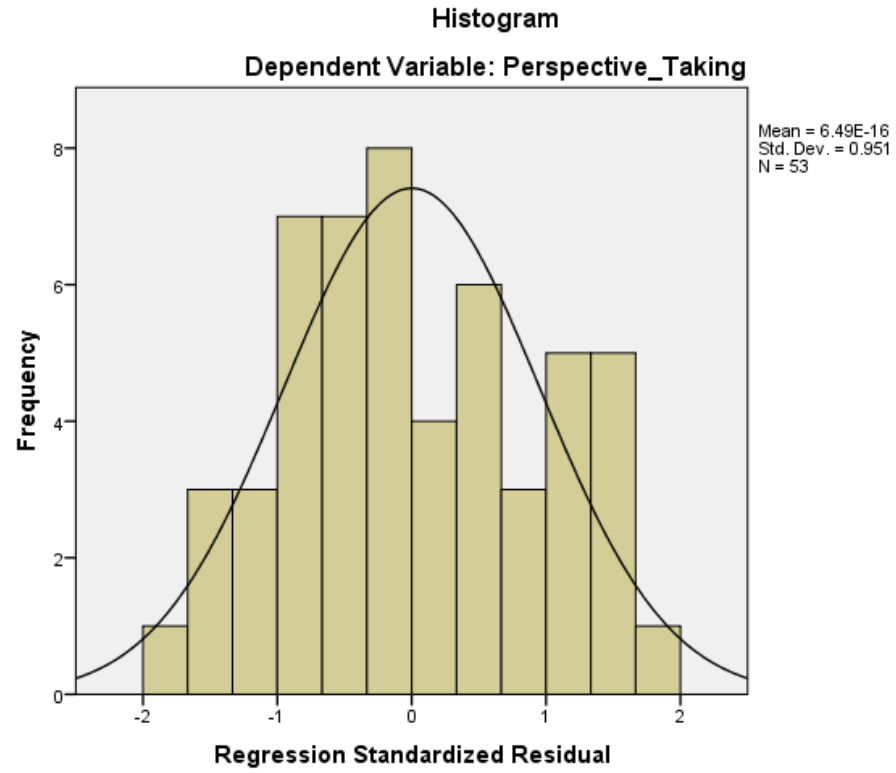


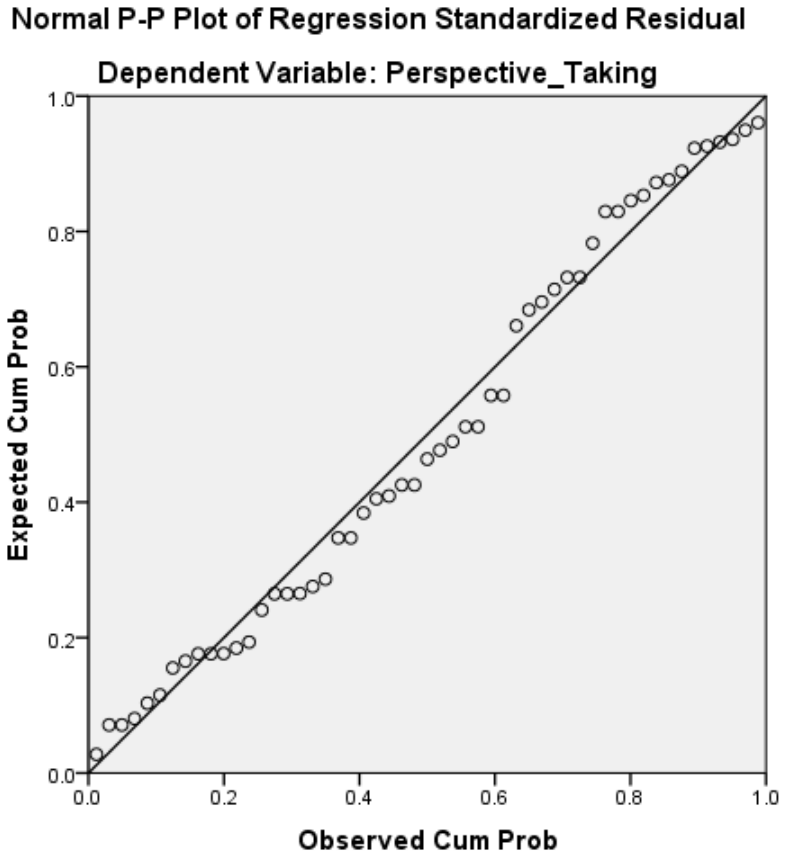


Perspective Taking subscale:

Descriptive Statistics

	Mean	Std. Deviation	N
Perspective_Taking	20.36	3.654	53
Male	.2264	.42252	53
Pharmacy1	.1698	.37906	53
Paramed1	.2830	.45478	53
TwentyOneorYounger_No	.2830	.45478	53
PTS_No	.6792	.47123	53

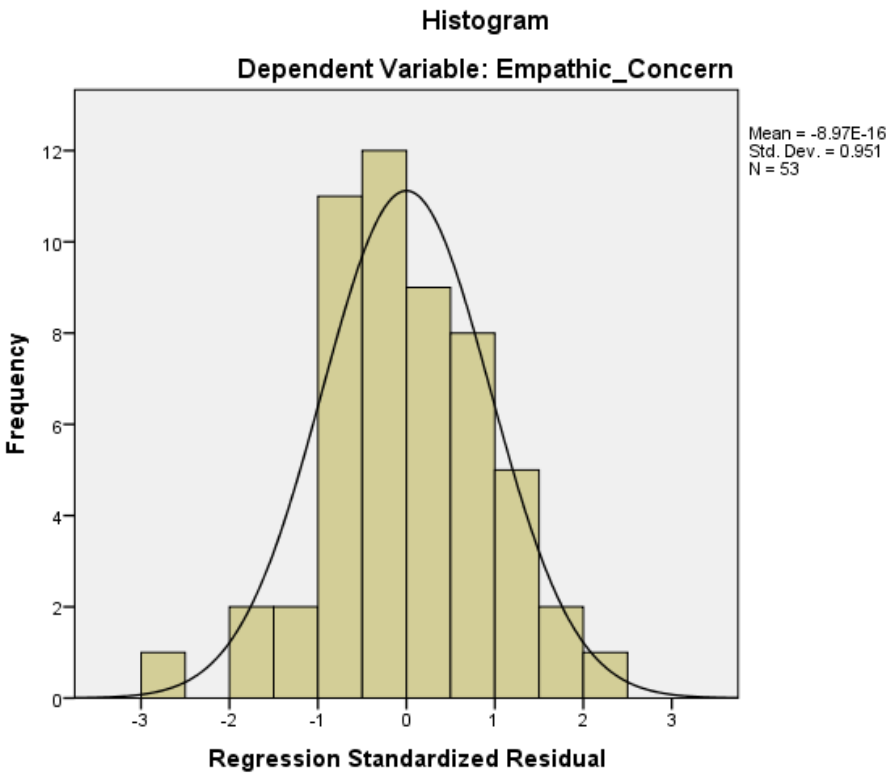

Histogram
Dependent Variable: Perspective_Taking
Mean = 6.49E-16
Std. Dev. = 0.951
N = 53
Frequency
Regression Standardized Residual

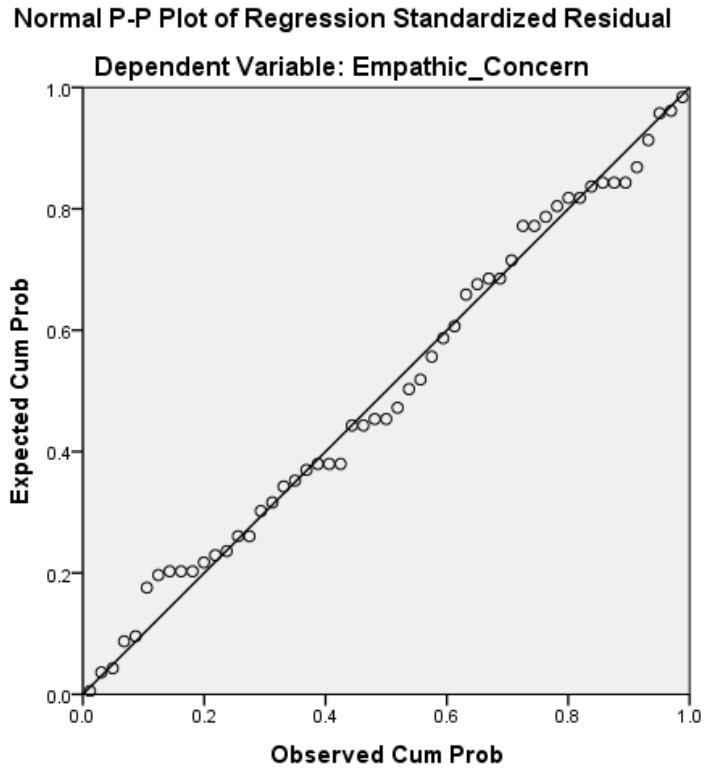

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Perspective_Taking
Expected Cum Prob
Observed Cum Prob

Empathic Concern subscale:

Descriptive Statistics

	Mean	Std. Deviation	N
Empathic_Concern	21.81	3.843	53
Male	.2264	.42252	53
Pharmacy1	.1698	.37906	53
Paramed1	.2830	.45478	53
TwentyOneorYounger_No	.2830	.45478	53
PTS_No	.6792	.47123	53

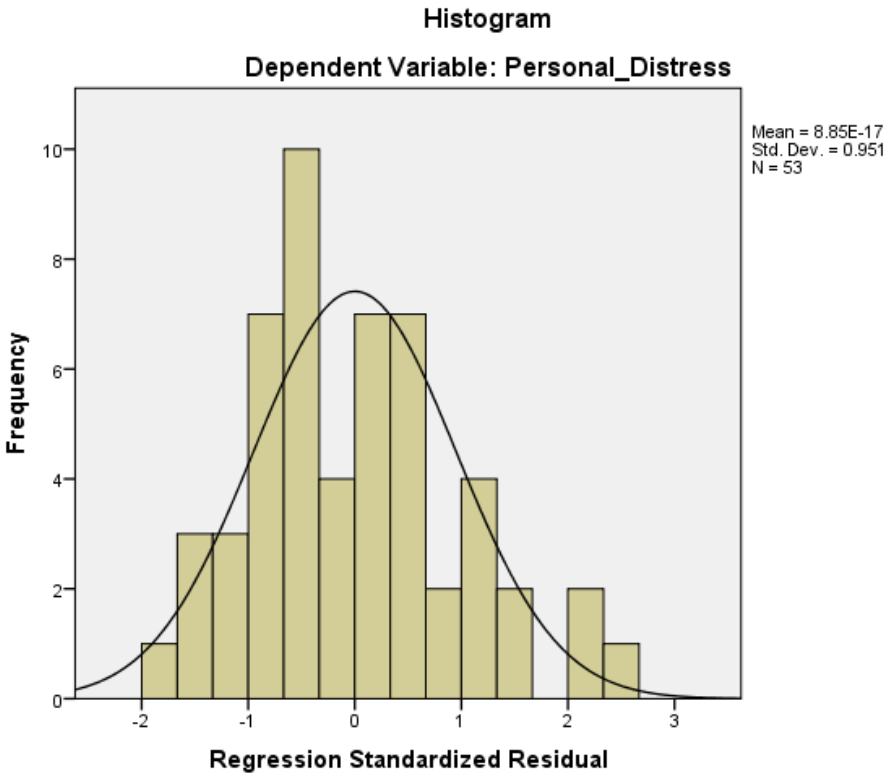


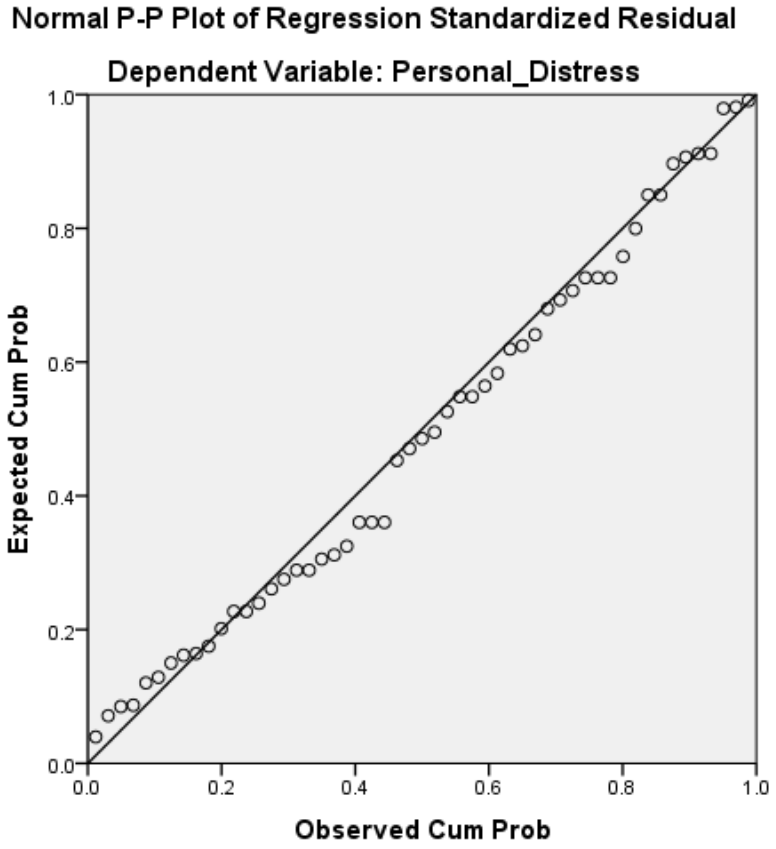


Personal Distress subscale:

Descriptive Statistics

	Mean	Std. Deviation	N
Personal_Distress	10.06	4.213	53
Male	.2264	.42252	53
Pharmacy1	.1698	.37906	53
Paramed1	.2830	.45478	53
TwentyOneorYounger_No	.2830	.45478	53
PTS_No	.6792	.47123	53


Histogram
Dependent Variable: Personal_Distress
Mean = 8.85E-17
Std. Dev. = 0.951
N = 53
Frequency
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Personal_Distress
Expected Cum Prob
Observed Cum Prob

Appendix 20: SPSS outputs for the IRI Hierarchical Multiple Regression

Fantasy subscale:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.278[a]	.077	.059	4.580	.077	4.258	1	51	.044	
2	.297[b]	.088	.033	4.643	.011	.305	2	49	.738	
3	.342[c]	.117	.023	4.666	.029	.762	2	47	.472	1.909

a. Predictors: (Constant), Male

b. Predictors: (Constant), Male, Pharmacy1, Paramed1

c. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

d. Dependent Variable: Fantasy

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.303	1	89.303	4.258	.044[b]
	Residual	1069.715	51	20.975		
	Total	1159.019	52			
2	Regression	102.477	3	34.159	1.584	.205[c]
	Residual	1056.542	49	21.562		
	Total	1159.019	52			
3	Regression	135.660	5	27.132	1.246	.303[d]
	Residual	1023.358	47	21.774		
	Total	1159.019	52			

a. Dependent Variable: Fantasy

b. Predictors: (Constant), Male

c. Predictors: (Constant), Male, Pharmacy1, Paramed1

d. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	19.268	.715		26.939	.000	17.832	20.704					
	Male	-3.102	1.503	-.278	-2.063	.044	-6.119	-.084	-.278	-.278	-.278	1.000	1.000
2	(Constant)	19.341	.938		20.629	.000	17.457	21.226					
	Male	-3.129	1.525	-.280	-2.051	.046	-6.194	-.063	-.278	-.281	-.280	.998	1.002
	Pharmacy1	.798	1.772	.064	.450	.654	-2.763	4.359	.085	.064	.061	.919	1.088
	Paramed1	-.716	1.478	-.069	-.484	.630	-3.686	2.255	-.076	-.069	-.066	.918	1.090
3	(Constant)	16.852	2.395		7.035	.000	12.033	21.672					
	Male	-3.568	1.593	-.319	-2.240	.030	-6.773	-.364	-.278	-.311	-.307	.925	1.082
	Pharmacy1	.072	1.875	.006	.038	.969	-3.701	3.845	.085	.006	.005	.829	1.207
	Paramed1	-1.259	1.613	-.121	-.781	.439	-4.504	1.986	-.076	-.113	-.107	.778	1.285
	TwentyOneorYounger_No	3.398	2.761	.327	1.231	.224	-2.156	8.952	.067	.177	.169	.266	3.765
	PTS_No	2.803	2.609	.280	1.074	.288	-2.446	8.051	-.012	.155	.147	.277	3.610

a. Dependent Variable: Fantasy

Perspective Taking subscale:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.228[a]	.052	.033	3.592	.052	2.796	1	51	.101	
2	.238[b]	.057	-.001	3.655	.005	.125	2	49	.882	
3	.253[c]	.064	-.036	3.718	.007	.178	2	47	.838	1.648

a. Predictors: (Constant), Male

b. Predictors: (Constant), Male, Pharmacy1, Paramed1

c. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

d. Dependent Variable: Perspective_Taking

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.083	1	36.083	2.796	.101[b]
	Residual	658.106	51	12.904		
	Total	694.189	52			
2	Regression	39.432	3	13.144	.984	.408[c]
	Residual	654.756	49	13.362		
	Total	694.189	52			
3	Regression	44.351	5	8.870	.642	.669[d]
	Residual	649.838	47	13.826		
	Total	694.189	52			

a. Dependent Variable: Perspective_Taking

b. Predictors: (Constant), Male

c. Predictors: (Constant), Male, Pharmacy1, Paramed1

d. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	20.805	.561		37.085	.000	19.679	21.931					
	Male	-1.972	1.179	-.228	-1.672	.101	-4.339	.395	-.228	-.228	-.228	1.000	1.000
2	(Constant)	20.608	.738		27.920	.000	19.124	22.091					
	Male	-1.946	1.201	-.225	-1.621	.112	-4.359	.467	-.228	-.226	-.225	.998	1.002
	Pharmacy1	.158	1.395	.016	.113	.910	-2.645	2.961	-.003	.016	.016	.919	1.088
	Paramed1	.582	1.164	.072	.500	.619	-1.757	2.920	.077	.071	.069	.918	1.090
3	(Constant)	21.618	1.909		11.325	.000	17.778	25.458					
	Male	-1.761	1.269	-.204	-1.388	.172	-4.315	.792	-.228	-.198	-.196	.925	1.082
	Pharmacy1	.434	1.494	.045	.290	.773	-2.573	3.440	-.003	.042	.041	.829	1.207
	Paramed1	.757	1.285	.094	.589	.559	-1.829	3.343	.077	.086	.083	.778	1.285
	TwentyOneorYounger_No	-1.279	2.200	-.159	-.581	.564	-5.705	3.147	.007	-.084	-.082	.266	3.765
	PTS_No	-1.158	2.079	-.149	-.557	.580	-5.340	3.025	-.077	-.081	-.079	.277	3.610

a. Dependent Variable: Perspective_Taking

Empathic Concern subscale:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.175[a]	.030	.011	3.821	.030	1.602	1	51	.211	
2	.334[b]	.112	.057	3.732	.081	2.241	2	49	.117	
3	.338[c]	.114	.020	3.805	.002	.060	2	47	.942	1.603

a. Predictors: (Constant), Male

b. Predictors: (Constant), Male, Pharmacy1, Paramed1

c. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

d. Dependent Variable: Empathic_Concern

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.392	1	23.392	1.602	.211[b]
	Residual	744.722	51	14.602		
	Total	768.113	52			
2	Regression	85.808	3	28.603	2.054	.118[c]
	Residual	682.306	49	13.925		
	Total	768.113	52			
3	Regression	87.554	5	17.511	1.209	.320[d]
	Residual	680.559	47	14.480		
	Total	768.113	52			

a. Dependent Variable: Empathic_Concern

b. Predictors: (Constant), Male

c. Predictors: (Constant), Male, Pharmacy1, Paramed1

d. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	22.171	.597		37.150	.000	20.973	23.369					
	Male	-1.587	1.254	-.175	-1.266	.211	-4.105	.931	-.175	-.175	-.175	1.000	1.000
2	(Constant)	23.055	.753		30.598	.000	21.541	24.569					
	Male	-1.656	1.226	-.182	-1.351	.183	-4.119	.808	-.175	-.189	-.182	.998	1.002
	Pharmacy1	-2.909	1.424	-.287	-2.043	.046	-5.771	-.047	-.242	-.280	-.275	.919	1.088
	Paramed1	-1.324	1.188	-.157	-1.114	.271	-3.711	1.063	-.068	-.157	-.150	.918	1.090
3	(Constant)	22.820	1.953		11.682	.000	18.890	26.750					
	Male	-1.722	1.299	-.189	-1.326	.191	-4.336	.891	-.175	-.190	-.182	.925	1.082
	Pharmacy1	-2.901	1.529	-.286	-1.897	.064	-5.978	.176	-.242	-.267	-.260	.829	1.207
	Paramed1	-1.193	1.315	-.141	-.907	.369	-3.839	1.453	-.068	-.131	-.125	.778	1.285
	TwentyOneorYounger_No	-.082	2.251	-.010	-.036	.971	-4.611	4.447	-.101	-.005	-.005	.266	3.765
	PTS_No	.346	2.128	.042	.162	.872	-3.935	4.626	.030	.024	.022	.277	3.610

a. Dependent Variable: Empathic_Concern

Personal Distress subscale:

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.198[a]	.039	.020	4.170	.039	2.080	1	51	.155	
2	.322[b]	.104	.049	4.109	.064	1.763	2	49	.182	
3	.336[c]	.113	.018	4.174	.009	.237	2	47	.790	1.983

a. Predictors: (Constant), Male

b. Predictors: (Constant), Male, Pharmacy1, Paramed1

c. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

d. Dependent Variable: Personal_Distress

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.157	1	36.157	2.080	.155[b]
	Residual	886.673	51	17.386		
	Total	922.830	52			
2	Regression	95.672	3	31.891	1.889	.144[c]
	Residual	827.159	49	16.881		
	Total	922.830	52			
3	Regression	103.938	5	20.788	1.193	.327[d]
	Residual	818.892	47	17.423		
	Total	922.830	52			

a. Dependent Variable: Personal_Distress

b. Predictors: (Constant), Male

c. Predictors: (Constant), Male, Pharmacy1, Paramed1

d. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

Coefficients[a]

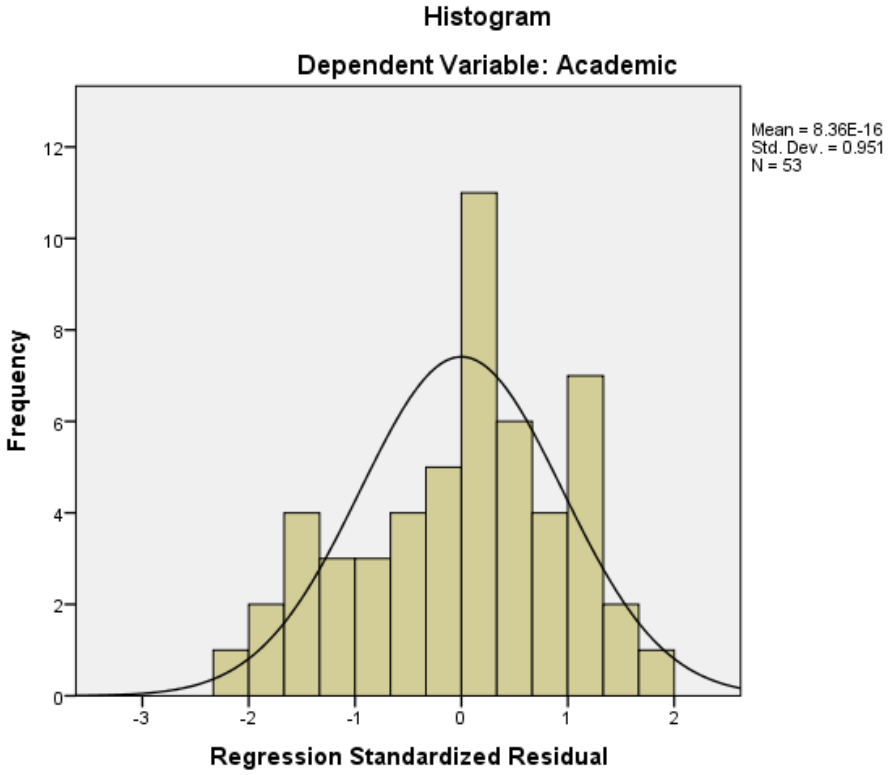
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	9.610	.651		14.757	.000	8.302	10.917					
	Male	1.974	1.369	.198	1.442	.155	-.774	4.721	.198	.198	.198	1.000	1.000
2	(Constant)	10.202	.830		12.297	.000	8.534	11.869					
	Male	1.879	1.350	.188	1.392	.170	-.833	4.592	.198	.195	.188	.998	1.002
	Pharmacy1	.381	1.568	.034	.243	.809	-2.770	3.532	.102	.035	.033	.919	1.088
	Paramed1	-2.244	1.308	-.242	-1.716	.093	-4.872	.384	-.259	-.238	-.232	.918	1.090
3	(Constant)	9.051	2.143		4.224	.000	4.740	13.362					
	Male	1.631	1.425	.164	1.145	.258	-1.236	4.497	.198	.165	.157	.925	1.082
	Pharmacy1	.183	1.678	.016	.109	.914	-3.192	3.558	.102	.016	.015	.829	1.207
	Paramed1	-2.168	1.443	-.234	-1.503	.140	-5.071	.735	-.259	-.214	-.206	.778	1.285
	TwentyOneorYounger_No	.846	2.470	.091	.343	.733	-4.122	5.815	-.129	.050	.047	.266	3.765
	PTS_No	1.442	2.334	.161	.618	.540	-3.253	6.137	.184	.090	.085	.277	3.610

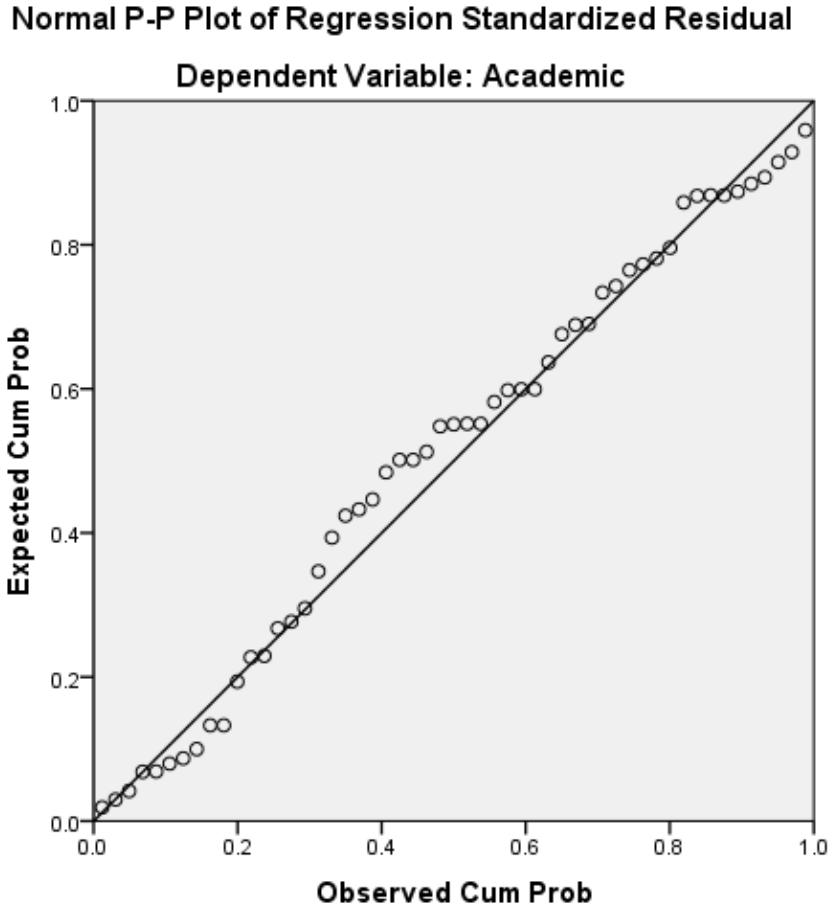
a. Dependent Variable: Personal_Distress

Appendix 21: SPSS outputs for descriptive statistics and assumption testing for the Academic Self-concept subscale of the SDQIII Hierarchical Multiple Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Academic	64.00	8.043	53
Male	.2264	.42252	53
Pharmacy1	.1698	.37906	53
Paramed1	.2830	.45478	53
TwentyOneorYounger_No	.2830	.45478	53
PTS_No	.6792	.47123	53




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Academic
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

Appendix 22: SPSS outputs for the Academic Self-concept subscale of the SDQIII

Hierarchical Multiple Regression

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.175[a]	.031	.012	7.996	.031	1.619	1	51	.209	
2	.176[b]	.031	-.028	8.156	.000	.005	2	49	.995	
3	.304[c]	.092	-.004	8.060	.062	1.593	2	47	.214	1.765

a. Predictors: (Constant), Male

b. Predictors: (Constant), Male, Pharmacy1, Paramed1

c. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

d. Dependent Variable: Academic

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.522	1	103.522	1.619	.209[b]
	Residual	3260.478	51	63.931		
	Total	3364.000	52			
2	Regression	104.128	3	34.709	.522	.669[c]
	Residual	3259.872	49	66.528		
	Total	3364.000	52			
3	Regression	311.019	5	62.204	.958	.453[d]
	Residual	3052.981	47	64.957		
	Total	3364.000	52			

a. Dependent Variable: Academic

b. Predictors: (Constant), Male

c. Predictors: (Constant), Male, Pharmacy1, Paramed1

d. Predictors: (Constant), Male, Pharmacy1, Paramed1, PTS_No, TwentyOneorYounger_No

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	64.756	1.249		51.858	.000					
	Male	-3.339	2.624	-.175	-1.273	.209	-.175	-.175	-.175	1.000	1.000
2	(Constant)	64.806	1.647		39.350	.000					
	Male	-3.341	2.680	-.175	-1.247	.218	-.175	-.175	-.175	.998	1.002
	Pharmacy1	-.286	3.113	-.013	-.092	.927	-.013	-.013	-.013	.919	1.088
	Paramed1	-.005	2.596	.000	-.002	.998	.011	.000	.000	.918	1.090
3	(Constant)	58.028	4.138		14.025	.000					
	Male	-4.634	2.751	-.243	-1.684	.099	-.175	-.239	-.234	.925	1.082
	Pharmacy1	-1.971	3.239	-.093	-.609	.546	-.013	-.088	-.085	.829	1.207
	Paramed1	-.791	2.786	-.045	-.284	.778	.011	-.041	-.039	.778	1.285
	TwentyOneorYounger_No	7.719	4.768	.436	1.619	.112	.042	.230	.225	.266	3.765
	PTS_No	7.943	4.506	.465	1.763	.084	.066	.249	.245	.277	3.610

a. Dependent Variable: Academic

Appendix 23: SPSS outputs for descriptive statistics for scores on Clinical Skills Acquisition

Clinical Skills by Age:

Descriptives

Mean_Clincial_Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Yes	38	72.2584	10.31980	1.67409	68.8664	75.6505	49.17	91.00
2 No	14	76.9879	9.98015	2.66731	71.2255	82.7502	60.50	91.00
Total	52	73.5317	10.35082	1.43540	70.6500	76.4134	49.17	91.00

Test of Homogeneity of Variances

Mean_Clincial_Skills

Levene Statistic	df1	df2	Sig.
.012	1	50	.913

Clinical Skills by Course:

Descriptives

Mean_Clincial_Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Medicine	29	68.8672	8.69577	1.61476	65.5595	72.1749	49.17	89.93
2 Pharmacy	9	73.7222	11.04002	3.68001	65.2361	82.2083	52.00	82.50
3 Paramedicine	14	83.0714	5.98992	1.60087	79.6130	86.5299	68.50	91.00
Total	52	73.5317	10.35082	1.43540	70.6500	76.4134	49.17	91.00

Test of Homogeneity of Variances

Mean_Clincial_Skills

Levene Statistic	df1	df2	Sig.
1.619	2	49	.208

Clinical Skills by Gender:

Descriptives

Mean_Clincial_Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Female	41	75.4341	9.50909	1.48507	72.4327	78.4356	52.00	91.00
2 Male	11	66.4409	10.70394	3.22736	59.2499	73.6319	49.17	87.50
Total	52	73.5317	10.35082	1.43540	70.6500	76.4134	49.17	91.00

Test of Homogeneity of Variances

Mean_Clincial_Skills

Levene Statistic	df1	df2	Sig.
.008	1	50	.929

Clinical Skills by Prior Tertiary Study:

Descriptives

Mean_Clincial_Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1 Yes	16	75.7194	10.04691	2.51173	70.3658	81.0730	59.17	91.00
2 No	36	72.5594	10.47365	1.74561	69.0157	76.1032	49.17	91.00
Total	52	73.5317	10.35082	1.43540	70.6500	76.4134	49.17	91.00

Test of Homogeneity of Variances

Mean_Clincial_Skills

Levene Statistic	df1	df2	Sig.
.000	1	50	.995

Appendix 24: SPSS outputs for the correlation analysis between Clinical Skills scores and the IRI

Fantasy subscale:

Correlations

		Mean_Clincial_Skills	Fantasy
Mean_Clincial_Skills	Pearson Correlation	1	.103
	Sig. (2-tailed)		.466
	Sum of Squares and Cross-products	5464.118	255.220
	Covariance	107.140	5.004
	N	52	52
Fantasy	Pearson Correlation	.103	1
	Sig. (2-tailed)	.466	
	Sum of Squares and Cross-products	255.220	1159.019
	Covariance	5.004	22.289
	N	52	53

Perspective Taking subscale:

Correlations

		Mean_Clincial_Skills	Perspective_Taking
Mean_Clincial_Skills	Pearson Correlation	1	-.047
	Sig. (2-tailed)		.740
	Sum of Squares and Cross-products	5464.118	-90.414
	Covariance	107.140	-1.773
	N	52	52
Perspective_Taking	Pearson Correlation	-.047	1
	Sig. (2-tailed)	.740	
	Sum of Squares and Cross-products	-90.414	694.189
	Covariance	-1.773	13.350
	N	52	53

Empathic Concern subscale:

Correlations

		Mean_Clincial_Skills	Empathic_Concern
Mean_Clincial_Skills	Pearson Correlation	1	-.036
	Sig. (2-tailed)		.797
	Sum of Squares and Cross-products	5464.118	-72.832
	Covariance	107.140	-1.428
	N	52	52
Empathic_Concern	Pearson Correlation	-.036	1
	Sig. (2-tailed)	.797	
	Sum of Squares and Cross-products	-72.832	768.113
	Covariance	-1.428	14.771
	N	52	53

Personal Distress subscale:

Correlations

		Mean_Clincial_Skills	Personal_Distress
Mean_Clincial_Skills	Pearson Correlation	1	-.082
	Sig. (2-tailed)		.563
	Sum of Squares and Cross-products	5464.118	-181.787
	Covariance	107.140	-3.564
	N	52	52
Personal_Distress	Pearson Correlation	-.082	1
	Sig. (2-tailed)	.563	
	Sum of Squares and Cross-products	-181.787	922.830
	Covariance	-3.564	17.747
	N	52	53

Appendix 25: CAM101 unit outline

UNIVERSITY of TASMANIA

School of Medicine

Faculty of Health

CAM101-FOUNDATIONS OF MEDICINE 1 AND CAM102- FOUNDATIONS OF MEDICINE 2

Semesters 1 & 2, 2016

Unit Outline

Dr Dwight Assenheimer

Dr Derek Choi-Lundberg

Mr William Cuellar

CRICOS Provider Code: 00586B

CONTENTS

WHAT IS THE UNIT ABOUT?

Unit descriptions

CAM101 (Semester 1 – 50% unit)

This foundations unit will give students a framework on which to base their undergraduate medical studies. This includes the structural and functional organisation of the human body, beginning with the study of cells, the classification and types of human tissues and their functions, and a general description of structure and function of organ systems. This unit also explores the normal constitution and function of the integumentary system (skin) and an introduction to pathologies that primarily affect the skin and its derivatives, in addition to basic general pathological processes, e.g., inflammation and neoplasia. Students will learn and develop communication skills for medical practice, and become familiar with clinical diagnostic processes. Students will discuss the range of patient populations and explore meanings and determinants of health, and understand the role that a medical practitioner plays in the Australian health care system and the wider Australian community, including ethical considerations. Students will learn how to practice self-care, and acquire and develop the skills needed to engage in an active learning environment, including scoping, locating, synthesizing, and managing information.

CAM102: (Semester 2– 50% unit)

This second foundations unit introduces the normal structure and function as well as diseases of the musculoskeletal system. Clinical cases focus on the bones, joints, muscles, and neurovascular supply of the upper and lower limbs and back. Building upon clinical practice skills from CAM101, history and examination skills for the musculoskeletal and nervous system will be developed. CAM102 provides an introduction to medical research from laboratory bench to clinical practice, and research skills including data analysis and statistics. This unit also explores the biopsychosocial, ethical and legal frameworks and community context of the provision of health care in Australia, including issues related to birth and early infancy in a family context. In addition, skills and knowledge of self-care, professionalism, and reflective practice will be further developed.

Organising principles of the MBBS curriculum

The MBBS curriculum uses the four domains from the 'Standards for Assessment and Accreditation of Primary Medical Programs by the Australian Medical Council (AMC) 2012' http://www.amc.org.au/accreditation/basic-medical-education/standards as an organising principle. These domains are:

- Science and Scholarship (the medical graduate as scientist and scholar)
- Clinical Practice (the medical graduate as practitioner)

- Health and Society (the medical graduate as a health advocate)
- Professionalism and Leadership (the medical graduate as a professional and leader)

CAM101/102 incorporates the University of Tasmania Generic Graduate Attributes, and addresses the knowledge, skills and attitudes required of a medical graduate in Australia and New Zealand.

Intended Learning Outcomes

On completion of CAM101, you will be able to:

1. Describe the relationships between structure and function of biomolecules, cells, tissues, organs and organ systems; how cells and tissues interact to form organs and organ systems; and principles of homeostasis.
2. Describe the organisation and function of the immune system and its relevance to disease.
3. Describe in depth the structure and function of the skin and its derivatives.
4. Discuss infection control in the clinical environment, and demonstrate effective hand hygiene.
5. Describe the organisation of the microbial world, key characteristics of normal flora and medically important micro-organisms, principles of clinical specimen collection and culture, and the basic interpretation of microbiological laboratory reports.
6. Describe the basic pathological processes of acute and chronic inflammation, tissue injury and repair, cell death, and benign and malignant neoplasms.
7. Describe the aetiology, pathogenesis, macroscopic and microscopic pathological features, and clinical presentation of diseases affecting the integumentary system, including infectious disease and associated microbiology.
8. Describe the major events, mechanisms, and factors that affect embryonic and foetal development at an introductory level.
9. Develop, apply and create knowledge by scoping, locating, synthesizing and managing information effectively and efficiently.
10. Describe the principles of pharmacology at an introductory level, including pharmacokinetics (drug uptake, distribution, clearance, and half-life) and pharmacodynamics (cellular targets and mechanisms of drug action).
11. Discuss the importance of communication in medical practice.
12. Demonstrate the ability to learn and work effectively as part of a team.

13. Describe the principles of interpersonal communication, and demonstrate the ability to communicate clearly by listening, sharing and responding.
14. Understand the scope of an accurate, organised and problem-focussed medical history.
15. Understand how health, health equity and healthcare needs are affected by the social, economic, environmental, cultural and spiritual context of the lives of individuals, families, communities and populations.
16. Understand and describe the factors that contribute to the health and wellbeing of Aboriginal and Torres Strait Islander people, including history, spirituality and relationship to land, social and political determinants of health, epidemiology and health services.
17. Understand the differences in the health status of regional, rural and remote living Australians compared with those in urban and metropolitan areas.
18. Describe the Australian health care system including funding, planning and policies.
19. Experience and reflect on how the context of the health care setting influences clinical practice.
20. Outline the principles and practice of professionalism in medical practice.
21. Discuss the concept that ethical considerations are relevant to all aspects of health care delivery.
22. Explain and apply principles of reflective practice and self-directed learning.
23. Be aware of and apply principles of self-care.

On completion of CAM102, you will be able to:

1. Describe the normal development and growth, macroscopic (gross anatomical) and microscopic (histological) structure and function (physiology) of the musculoskeletal system, and its interactions with other organ systems, particularly the nervous system.
2. Identify and describe the basic structure and function of the nervous system.
3. Describe metabolic and nutritional aspects of the musculoskeletal system in health and disease, balanced nutrition across the lifecycle, metabolic consequences of malnutrition (over and under), and diabetes.
4. Discuss the aetiology, pathogenesis, macroscopic and microscopic pathological features, laboratory and radiological diagnosis as appropriate, and clinical presentation of musculoskeletal and rheumatological diseases, as well as wound infections and common viral infections.
5. Describe the principles of antimicrobial and antiviral therapy, antibiotic classes, and their basic mechanisms of action, and antibiotic resistance.
6. Apply knowledge of anatomy and pathology to interpret radiological imaging modalities used in the assessment of the musculoskeletal system including fractures, joint pathology and bone tumours.
7. Analyse primary research articles related to a medical research topic through scientific writing.
8. Be aware of basic medical research paradigms and explain their use in medical research.
9. Apply and interpret descriptive and basic inferential statistics in medical research data sets and primary medical research articles.
10. Demonstrate increasing skills in the ability to learn and work effectively as part of a team.
11. Understand the scope of an organised and problem-focussed medical history, including family, occupational and lifestyle features.
12. Apply knowledge of functional and surface anatomy to describe and perform clinical examination of the limbs and back using standardized musculoskeletal and neurological examination protocols.
13. Understand how health, health equity and healthcare needs are affected by the social, economic, environmental, cultural and spiritual context of the lives of individuals, families, communities and populations.
14. Understand and describe the factors that contribute to the health and wellbeing of Aboriginal and Torres Strait Islander people, including history, spirituality and relationship to land, social and political determinants of health, epidemiology and health services.
15. Understand the differences in the health status of regional, rural and remote living Australians compared with those in urban and metropolitan areas.
16. Develop and demonstrate an understanding of the health care issues related to birth and early infancy within a family context.
17. Describe the Australian health care system including funding, planning and policies.
18. Experience and reflect on how the context of the health care setting influences clinical practice.
19. Be aware of, describe and apply the principles of self-care and personal and professional development.
20. Recognise and explain the ethical dimensions of medical practice and the legal demands on the medical profession.
21. Recognise the holistic nature of professional commitment.
22. Demonstrate the acquisition of reflective practice through reflective writing.

Graduate Quality Statement

Successful completion of CAM101 and CAM102 supports your development of course learning outcomes, which describe what a graduate of a course knows, understands and is able to do. Course learning outcomes are developed with reference to national discipline standards, Australian Qualifications Framework (AQF), professional accreditation requirements and the University of Tasmania's Graduate Quality Statement.

On completion of the MBBS program, a School of Medicine (SoM) MBBS graduate should possess an appropriate foundation of knowledge, skills and attitudes so that they are well prepared to practice safely and effectively as an intern and subsequently undertake further training, as articulated in the Australian Medical Council's Graduate Outcome Statements, on pages 2-4 of 'Standards for Assessment and Accreditation of Primary Medical Programs by the Australian Medical Council 2012'.

> The University of Tasmania experience unlocks the potential of individuals. Our graduates are equipped and inspired to shape and respond to the opportunities and challenges of the future as accomplished communicators, highly regarded professionals and culturally competent citizens in local, national, and global society. University of Tasmania graduates acquire subject and multidisciplinary knowledge and skills and develop creative and critical literacies and skills of inquiry. Our graduates recognise and critically evaluate issues of social responsibility, ethical conduct and sustainability. Through respect for diversity and by working in individual and collaborative ways, our graduates reflect the values of the University of Tasmania.

Alterations to the unit as a result of student feedback

In response to MBBS student feedback and reflective evaluation by staff, essay topics have been edited to increase clarity of the task descriptions, the Clinical Practice program is being revised, and the Kids and Families Program 1st case report has been moved to CAM201.

Prior knowledge &/or skills

Admission to the undergraduate medical course.

A current St John Ambulance Workplace 2 – Senior First Aid Certificate or equivalent (e.g. Red Cross). This certificate may be completed before admission to medicine (certificate must be current). You must complete the certificate by the end of semester 1. A copy of your certificate must be presented to the unit administrators (External Liaison team). **Without a current first aid certificate in semester 2, you will not be eligible to attend student placement program activities, which will result in failure to complete 'Other Unit Requirements' and thus an NS or NN result in Year 1 (see Assessment and Criteria for a pass in Year 1, below).**

HOW WILL I BE ASSESSED?

A variety of assessment formats may be used, including:

- Multiple Choice Questions (MCQ)
- Extended Matching Questions (EMQ)
- Short Answer Questions (SAQ)
- Essay questions (EQ)
- Applied Questions, which are usually in the form of SAQ, but may also include MCQ, EMQ, and/or EQ
- Clinical skills competency assessments
- Written assignments, including reflective essays and academic essays
- Online discussion forums
- Presentations
- Portfolio
- Checklist reports of professional behaviour

Remediation

Students having difficulty with course requirements such as attendance, presentations, assignments, and/or less than optimal performance on formative and summative exams should make contact with the relevant academic and/or student support services staff. Remediation may be offered on a case-by-case basis under the direction of the Unit Coordinators, in conjunction with relevant academic and student support services staff.

Formative Assessment

Formative assessment tasks will be undertaken throughout the year to guide student learning, provide feedback and opportunities for students to experience assessment approaches prior to undertaking summative assessment.

Formative assessment tasks will be ongoing components of the units, and may include formally structured activities and MyLO tasks that can be completed in a self-directed manner. Formative assessments do not count towards your final mark.

Summative Assessment

Summative assessment tasks will be undertaken both continuously during the units and during the end of semester formal examination periods. Results from CAM101 will be carried forward and combined with CAM102 results into a final mark for year 1.

Students repeating year 1 must complete all assessment tasks in the current academic year, and are not exempt from attendance and participation requirements.

Assessment schedule – CAM101

Formative Assessment Tasks

Formative Assessment Task	Date
1. MCQ quiz	18 March 2016, Friday of week 4
2. MCQ/SAQ/EQ - on MyLO	through semester
3. Applied questions – in class / on MyLO	through semester
4. Information and Research Skills Quizzes (Online)	Due 11 March, 18 March, 1 April, 8 April, 6 May 2016, Fridays of weeks 3, 4, 5, 6, and 10
5. Case-based presentations (CBL) – two	Fridays of weeks 2 to 7 as per CBL schedule
6. Clinical Practice skills	through semester
7. Applied Examination	24 May 2016, Tues of week 13
8. Checklist report on professional behaviour	Mid- and end of semester

CAM101 Summative Assessment Tasks and Their Weightings: Summary

For determination of your final mark in the year, along with CAM102 Summative Assessment Tasks and the Criteria for a Pass.

Assessment Task	Weighting	Minimum requirement to pass year 1	Date
1-1. Essay 1 – Reflective essay on becoming a doctor	3%	Must be attempted, contributes to the weighted average ≥50% in assignments & essays requirement	Due 9.00am, 15 March 2016, Tuesday of Week 4
1-2. Mid-semester written exam	5%	Contributes to the weighted average ≥50% in exams requirement	5 April 2016, Tuesday of Week 6
1-3. Essay 2 – Academic essay on values and the distribution of health	2%	Must be attempted, contributes to the weighted average ≥50% in assignments & essays requirement	Due 9.00am, 26 April 2016, Tuesday of Week 9
1-4. Written Examination 1	11%	Contributes to the weighted average ≥50% in exams requirement	Formal exam period
1-5. Written Examination 2	11%	Contributes to the weighted average ≥50% in exams requirement	Formal exam period
1-6. Applied Examination	8%	Contributes to the weighted average ≥50% in exams requirement	Formal exam period
1-7. Other Unit Requirements	Pass/Fail	Pass	During the semester – see following table

Specific dates of the CAM101 and CAM102 end-of-semester examinations during the formal examination period will be released by the Examinations Office on Friday of week 10 (6 May 2016).

Summary of 1-7. Other Unit Requirements

Assessment Tasks	Requirement for pass	Date
Submission of Safety in Practice Requirements	Complete and submit	Due 5.00pm, 4 March 2016, Friday of week 2
Laboratory Safety Quiz	100% (multiple attempts allowed)	11 March 2016, Friday of week 3
Aboriginal Cultural Awareness and Safety Program	Attend and Participate	9 March 2016 or 16 March 2016, Wednesday of week 3 or 4 (as per your CBL group)
Case task presentations (CBL) – two (in addition to formative tasks above)	Pass both	Fridays of weeks 8 to 12 as per CBL schedule
Personal and Professional Development (PPD) Portfolio	Submissions address the questions adequately	Pia: 26 Feb 2016, Friday of week 1. Pib: 29 April 2016, Friday of week 9

Assessment details – CAM101

Please check MyLO for more detailed assessment instructions and criteria.

1.1. Essay 1 – Reflective Essay

Task description	Discuss how the personal beliefs, values and qualities that you bring to the study of medicine will influence the development of your professional values.
Assessment criteria	Must be attempted; contributes to the weighted average ≥50% in assignments & essays requirement. Further details and assessment criteria will be available on MyLO. Refer to the Reflective Writing Guide and Reflective Essay Assessment Criteria Sheet. Contributes 3% to the final mark.
Links to unit's intended learning outcomes	22
Task length	1500-2000 words
Date	See summary table above

1.2. Mid-semester written exam

Task description	A written examination, including MCQ/EMQ/SAQ/EQ
Assessment criteria	Material from weeks 1-5 inclusive. Contributes to the weighted average ≥50% in exams requirement. Contributes 5% to the final mark.
Links to unit's intended learning outcomes	1-23 as covered in weeks 1-5 inclusive
Task length	2 Hours
Date due	See summary table above

1.3. Essay 2 – Academic essay

Description / conditions	From within a population health framework, describe and discuss how values of social justice, fairness and equity relate to the distribution of health in the Australian context.
Assessment criteria	Must be attempted. Contributes to the weighted average ≥50% in assignments & essays requirement. Refer to the Academic Essay writing guide and assessment matrix when planning and writing your essay, available on MyLO. Contributes 2% to the final mark.

Links to unit's intended learning outcomes	15-21
Duration	1500 – 2000 words
Date	See summary table above

1.4. Written Examination 1

Description / conditions	Comprised of MCQ/EMQ/SAQ/EQ, to test knowledge and understanding of concepts covered in semester 1.
Assessment criteria	Contributes to the weighted average ≥50% in exams requirement. Contributes 11% to the final mark.
Links to unit's intended learning outcomes	1-23
Duration	3 hours
Date	The final examinations are conducted by the Student Centre in the formal examination period. See the Examinations and Results page on the University's website, or access your personal exams timetable by logging into eStudent for specific date, time and location closer to the examination period.

1.5. Written Examination 2

Description / conditions	Comprised of MCQ/EMQ/SAQ/EQ to test knowledge and understanding of concepts covered in semester 1.
Assessment criteria	Contributes to the weighted average ≥50% in exams requirement. Contributes 11% to the final mark.
Links to unit's intended learning outcomes	1-23
Duration	3 hours
Date	The final examinations are conducted by the Student Centre in the formal examination period. See the Examinations and Results page on the University's website, or access your personal exams timetable by logging into eStudent for specific date, time and location closer to the examination period.

1.6. Applied Examination

Task description	Comprised of SAQ/EQ, and possibly some MCQ/EMQ, to assess application of knowledge and understanding of concepts covered in semester 1. May include identification and explanation of specimens, models, medical images (photos, radiographs, CT, MRI, etc.), charts, graphs and any other material related to all learning sessions.
Assessment criteria	Contributes to the weighted average ≥50% in exams requirement. Contributes 8% to the final mark.

Links to unit's intended learning outcomes	1-23
Task length	Up to 3 hours.
Date due	The final examinations are conducted by the Student Centre in the formal examination period. See the Examinations and Results page on the University's website, or access your personal exams timetable by logging into eStudent for specific date, time and location closer to the examination period. Please check MyLO closer to the date for additional details (students are allocated to a specific session on the day of the examination).

1.7- Other Unit Requirements

Laboratory Safety Quiz

A MyLO-based MCQ quiz on the following topic: **Behaviour in the Laboratory.**

Assessment criteria / guidelines: The pass mark is 100%; multiple attempts are allowed. Failure to complete this task with 100% correct by the due date will result in exclusion from subsequent practical (laboratory) activities, until the quiz is passed.

Due date: See summary table above.

Submission of student placement agreement

Submission of your student placement agreement to School of Medicine administration.

Due date: see summary table above.

Aboriginal Cultural Awareness and Safety Program

Students must **attend and participate** in the Tasmanian Aboriginal Cultural Awareness and Safety Program to increase their understanding and ability to describe the factors that contribute to the health and wellbeing of Aboriginal and Torres Strait Islander people, including history, spirituality and relationship to land (part of AMC graduate outcome 3.4). Retain a copy of the Certificate of Attendance for your records.

Due date: See summary table above. You must attend your timetabled session. For students who miss the program due to illness (with medical certificate), another date may arranged or an essay will be assigned, at the discretion of the unit coordinators and relevant staff.

Case-based Presentations (CBL)

Students will be required to undertake 2 formative and 2 summative presentations over the course of the semester. Students will work on their tasks in small groups (usually in pairs), and present their findings at the conclusion of the week, in a number of possible formats such as oral presentations, white board presentations or role play vignettes; and produce a summary sheet. The one-page summary of your presentation and a list of references are to be handed to your tutor at the time of the presentation and uploaded to MyLO under your CBL group afterwards. In the case of role plays, the summary needs to cover the background information from which the role play was developed.

Each group presentation will be allocated 5 minutes for the presentation with 5 minutes for question time.

Assessment criteria and guidelines: For the two CBL presentations in weeks 8 to 12, students will need to address criteria listed in the CBL presentation assessment sheet and achieve a pass grade. Students will be graded individually. Students who do not achieve a pass will be asked to re-present the task in a subsequent week.

Personal and Professional Development (PPD) Portfolio

The PPD Portfolio, maintained over the five years of the MBBS course, is a meaningful collection of documents and evidence that captures the diversity of your learning experiences and abilities. It demonstrates your attainment of attitudes, skills and knowledge that you need to complete the MBBS course and embark upon a successful medical career, as articulated in the Australian Medical Council's Graduate Outcome Statements. Broadly, the PPD Portfolio demonstrates:

- Medical graduate attributes
- Self-directed learning
- Progress and performance
- Achievements and exemplary work
- Engagement in a range of professionally relevant activities.

As the PPD Portfolio is maintained over the five years of the MBBS course, your accumulating PPD Portfolio must be available for presentation in each year of the MBBS.

In semester 1, portfolio entries P1a and P1b must be completed.

Due date: See summary table above.